Installation and User's Guide

Cakewalk

APPRENTICE

for

Windows™

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Cakewalk

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for

Windows

Release 1.0

MIDI Sequencer and Multimedia Control Application for Windows 3.1

Installation Guide

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Installation

Installing and setting up Cakewalk Apprentice is easy, but it is important that you follow these instructions completely or the program may not operate correctly.

1. Install Windows 3.1 correctly

Before installing Cakewalk Apprentice, you should make sure that you've correctly installed Windows 3.1.

Try some of the sample programs that come with Windows. If you experience any problems, try to resolve them through Microsoft Technical Support before proceeding to install Cakewalk Apprentice. Generally, it is easier for you to solve one problem at a time, and it will be much easier for us to help you if you have a reliable Windows installation.

Avoid Windows 3.0 video drivers

You should use the latest Windows 3.1 version of the driver for your video adapter. Most 3.1 drivers are faster, which makes all Windows programs faster. More importantly, som 3.0 video drivers may cause problems when used with Windows 3.1. For example, if you click on a button in Cakewalk Apprentice or some other application, and the application crashes, the problem might be a Windows 3.0 video driver.

2. Run Cakewalk Apprentice SETUP

1. Start Windows.
2. Insert the Cakewalk Apprentice disk 1 in the drive, and close the drive door.
3. From Windows Program Manager, open the File menu and select the Run command.
4. In the dialog box, type **A:SETUP**, and press ENTER.

Note: The SETUP program may take up to two or three minutes to load from the floppy disk.

5. Follow the instructions on the screen.

3. Read README.WRI

Cakewalk Apprentice SETUP installs an icon for the README.WRI file. Double-click on this icon to run Windows Write and load the Cakewalk Apprentice README.WRI file. This file contains important information about changes or additions after the documentation went to press. Please read it!

4. Install a driver

If you've already installed Windows 3.1 multimedia MIDI or sound card drivers, you may skip this section.

Cakewalk Apprentice uses the Multimedia Extensions in Windows 3.1 to talk to MIDI interfaces and sound cards. The Multimedia Extensions provide a way for applications to talk to different kinds of MIDI interfaces and sound cards through *drivers*. For Cakewalk Apprentice to work with your device, you must install a driver.

Install a driver that is provided by the manufacturer.

1. Run the Windows Control Panel program.
2. Double-click on the "Drivers" icon.
3. Press the **Add** button.
4. Select a driver from the list. If your MIDI or sound card device came with a diskette containing a Multimedia Extensions driver, select "Unlisted or Updated Driver" and insert the driver diskette when prompted.

   Note: This edition of Cakewalk Apprentice supports only drivers for Creative Labs products.

5. The driver will probably present you with a dialog box in which you need to give it information about how you've installed the device. (This is the same dialog box that you can access in "Drivers" by selecting the driver and pressing the **Setup** button.) Please consult the manufacturer's manual for the correct device settings. If you

haven't changed the factory-default settings on the device, then you probably don't need to change the default values proposed in the dialog box.

6. Press OK to finish configuring the driver. At this point, you should restart Windows for your changes to take effect.

5. Connect your MIDI equipment

If you are using a MIDI interface (like the Sound Blaster MIDI option) with an external MIDI keyboard, then you need to connect the equipment using MIDI cables.

It is possible to connect your equipment in some pretty complex ways that may cause problems. We recommend the following methods, which are simple. In fact, if you call for technical support with a problem where equipment doesn't seem to be responding, most likely we'll suggest that you reconnect things this way before exploring the problem further.

There are two basic methods. Pick one depending on whether your keyboard has:

- all three MIDI jacks: IN, OUT and THRU.
- only two MIDI jacks: IN and OUT.

If your keyboard *has* a MIDI Thru jack

If your keyboard has three MIDI jacks - IN, OUT and THRU -- then use the following diagram.

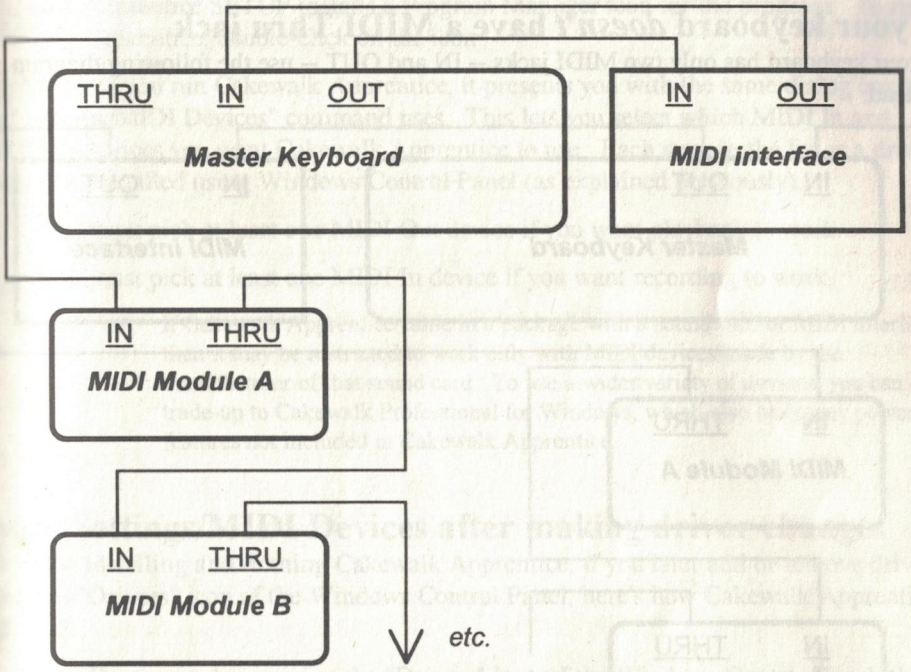


*Diagram for keyboards that **do** have a MIDI Thru jack.*

Here's a check-list:

Connect this	**to this**
Master keyboard OUT	MIDI interface IN
MIDI interface OUT	master keyboard IN
Master keyboard THRU	another MIDI module's IN
that MIDI module's THRU	yet another MIDI module's IN

and so on, repeating the last connection for each of your sound modules.

If you are a more-advanced user working with a synchronization device that needs to be connected to the MIDI interface's In jack, then you should follow the instructions included with the synchronization device.

Note: If your master keyboard now seems to double notes (they sound "thicker" or you can only play half as many at once) see "Trouble-shooting" later in this *Installation Guide.*

If your keyboard *doesn't* have a MIDI Thru jack

If your keyboard has only two MIDI jacks -- IN and OUT -- use the following diagram instead.

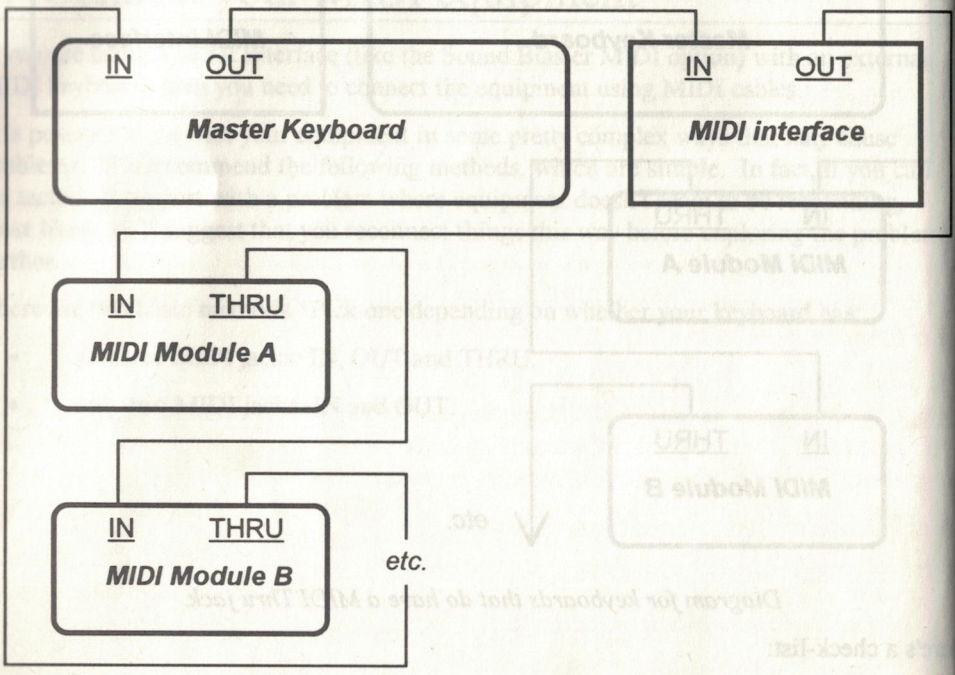


*Diagram for keyboards that do **not** have a MIDI Thru jack.*

Note: If your master keyboard now seems to double notes (they sound "thicker" or you can only play half as many at once) see "Trouble-shooting" later in this *Installation Guide.*

6. Start Cakewalk Apprentice

Cakewalk Apprentice SETUP installs a Program Manager icon for the program. To run Cakewalk Apprentice, double-click on the icon.

The first time you run Cakewalk Apprentice, it presents you with the same dialog box that the "Settings/MIDI Devices" command uses. This lets you select which MIDI In and MIDI Out devices you want Cakewalk Apprentice to use. Each item in the list is a driver that you've installed using Windows Control Panel (as explained previously).

- You must pick at least one MIDI Out device if you want playback to work.
- You must pick at least one MIDI In device if you want recording to work.

Note: If Cakewalk Apprentice came in a package with a sound card or MIDI interface, then it may be restricted to work only with MIDI devices made by the manufacturer of that sound card. To use a wider variety of devices, you can trade-up to Cakewalk Professional for Windows, which also has many powerful features not included in Cakewalk Apprentice.

Using Settings/MIDI Devices after making driver changes

After first installing and running Cakewalk Apprentice, if you later add or remove drivers using the "Drivers" icon of the Windows Control Panel, here's how Cakewalk Apprentice will react:

- If you **Remove** a driver using the "Drivers" icon of the Windows Control Panel, the next time you run Cakewalk Apprentice it will advise you that it can no longer open the device and present you with the "Settings/MIDI Devices" dialog. Any remaining devices that had been selected before will still be selected, and you may simply press OK to confirm the situation. Or, you may pick different devices.
- If you **Add** a driver using the "Drivers" icon, Cakewalk Apprentice will *not* automatically use it. You must choose "Settings/MIDI Devices" to add the new driver to Cakewalk Apprentice's list.

> Remember that after you Add or Remove a driver in Control Panel, you must restart Windows for the change to take effect.

Trouble-shooting

IRQ Conflicts

Symptoms

Cakewalk Apprentice does not seem to record notes from your keyboard, even though you've double-checked your connections as described earlier. Or, the system locks up when Windows starts (in Windows 386 Enhanced Mode) or when Cakewalk Apprentice starts (in Windows Standard Mode).

Causes

This may be due to a conflict over the *IRQ* that the MIDI interface or sound card uses to alert the computer when incoming data arrives. The MIDI interface may be set to use the same IRQ number as some other device in your computer. Example of other things that may conflict with the MIDI interface include:

- A Tandy hard-disk-on-a-card.
- A bus mouse. (A *bus* mouse comes with a card that you insert in an expansion slot of your computer, in contrast to a *serial* mouse which simply plugs into an existing serial port of the computer.)
- An EGA or VGA card set to generate IRQ 2.

Test

If possible, remove the other device that may be causing the conflict, for example the bus mouse card. Try running Cakewalk Apprentice again. If the problem has disappeared, we're on the right track.

Solutions

The solution is to change the IRQ number of either the MIDI interface or the other device.

If you change the IRQ of the MIDI interface, be sure to run Windows Control Panel, select the driver for the device, and press the **Setup** button. In the dialog box, enter a number to match the new IRQ number you have set on the MIDI interface. You need to restart Windows for your change to take effect.

If you are confused about which IRQ numbers might be appropriate for your MIDI interface, the manufacturer of the device can provide suggestions. Please consult their documentation or call their technical support.

Master keyboard note doubling

Symptoms

- When you play the keyboard, you can play only half as many notes at once as you can when you're not using Cakewalk Apprentice and have the computer turned off.

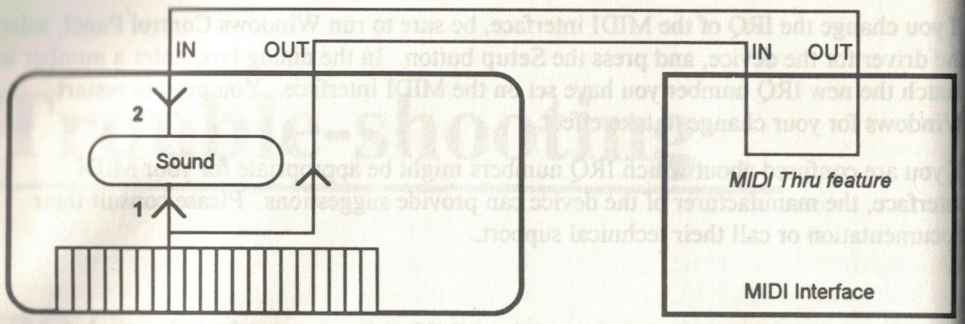
or

- Even if you seem to be able to play as many notes at once, each note seems "heavier" or "thicker" than usual, as if two notes of the same pitch were turned on when you press the key.

Causes

Cakewalk Apprentice provides a MIDI Thru capability: the data arriving at the MIDI In of the MIDI interface is echoed to the MIDI Out. This makes it easy to control many sound modules from a single master keyboard. The "Connecting your MIDI equipment" section earlier recommended a system that works well with this.

However, if the MIDI Thru is enabled, the master keyboard might turn on *two* notes for every key you press on its keyboard. One note comes from the keyboard itself when you press the key. The other note goes out the keyboard, through the MIDI interface, and back to the MIDI In of the master keyboard. In other words, there is an "echo."



How two notes -- labeled **1** *and* **2** *-- are generated for each key pressed on the keyboard.*

Various keyboards react to this echo in various ways: starting another note of the same pitch, re-triggering the original note, or something new and completely different.

Solutions

Eliminate the doubling by removing one of the two sources. Choose one of the following:

1. Disable the master keyboard's control of its own sound circuitry. This is called turning "Local Control Off".

Cakewalk Apprentice tries to do this automatically when it starts by sending a special message. If this doesn't seem to work, make sure that you turned on the keyboard before starting Cakewalk Apprentice. If it still doesn't work, consult the keyboard documentation about how to set Local Control Off manually.

The result is that, when you press a key, the keyboard sends that note message to its MIDI Out jack but doesn't start the note itself. However, the note message is passed through the MIDI interface and back to the MIDI In jack, at which point the keyboard turns on the note. You can think of this as splitting your keyboard into two distinct parts: (1) a keyboard controller that doesn't make any sound, and (2) a sound producing module, just like sound modules that don't have a keyboard.

2. Disable Cakewalk Apprentice's MIDI Thru feature: Choose the "Settings/MIDI Thru" command and pick "None".

Recommended solution: If you have just one keyboard in your setup, the second solution is fine. But if you have one or more sound modules in addition to a keyboard, the first solution is much better.

If you already own Cakewalk for DOS

This section is intended primarily for owners of Cakewalk for DOS and Cakewalk Professional 4.0 for DOS. It discusses some of the changes and improvements in Cakewalk Apprentice for Windows that you should be aware of. Please refer to the *User's Guide* for a complete description of new features.

Compatibility with Cakewalk for DOS files

When possible, Cakewalk Apprentice for Windows saves .WRK files in a format that Cakewalk for DOS can read. It must, however, add information supporting new features, which Cakewalk for DOS will ignore.

> While Cakewalk for DOS will read what it *can* understand, the fact that it ignores the new information means that saving the file in Cakewalk for DOS will result in that new information being discarded.

For example, Cakewalk for DOS does not understand Markers, and Cakewalk Apprentice for Windows saves Markers using a special file record. When Cakewalk for DOS loads the file, it will successfully load other information from the file but ignore the Markers information. Saving the file in Cakewalk for DOS will result in the Markers information being lost.

Another consideration is memory restrictions. Cakewalk Apprentice for Windows can have tracks containing hundreds of thousands of events.

Cakewalk Apprentice for Windows uses the same file format as Cakewalk for DOS unless you have tracks with more than 32,000 events or other things not supported by Cakewalk for DOS. In such an event, Cakewalk Apprentice for Windows stores the new feature in a

new file record. Cakewalk for DOS will ignore and discard that portion of the file whe loading.

Note: Even if a track contains fewer than 32,000 events, if it contains any new "special" events like Wave, Text, or MCIcmd, Cakewalk Apprentice for Windows must use the new file record and the entire track will be unavailable to Cakewalk for DOS. If this would cause a problem, you may work around it by moving these kinds of events to a separate track. That track will be unavailable to Cakewalk for DOS, but the "normal" events remaining on the other track will be available.

In summary, we have tried to provide downward-compatibility to the point that Cakewal for DOS can accommodate it.

F6 view keys

One of the most convenient features of Cakewalk Apprentice for Windows is the ability have multiple track-editing windows open at once. However, some Cakewalk for DOS owners may prefer to retain the familiar style of Cakewalk for DOS, where there is only one main window that you change using the F6 function key combinations. For this, select "Window/Options/DOS F6 view keys". A check mark appears beside this option the menu when it is enabled. This setting is saved between times you run Cakewalk Apprentice for Windows, so you may select this option once and it will remain on until you turn it off.

This emulation isn't perfect because Cakewalk Apprentice for Windows has more kinds "views" and many of them can be visible at once.

Keystroke	Action
F6 or SHIFT+F6	If the active window is an Event-list or Piano-roll view, it is closed. Activates the Track/Measure view (the "Track View" and "Measure View" are combined in Cakewalk for Windows).
CTRL+F6*	Opens an Event-list view ("Event View"), or, if one is already open, activates it.
ALT+F6	Opens a Piano-roll view ("Note View"), or, if one is already open, activates it.

* Normally in Windows programs, CTRL+F6 takes you to the next window in an application. That standard meaning is ignored when this option is enabled.

Track/Measure view

The "Track View" and "Measure View" have been combined into a single window with a border between the two halves that you can drag to size. The track parameter columns can be rearranged in whatever order you wish, and you can even change their width.

Offset parameter

The track Offset parameter is called **Time+** in Cakewalk Apprentice for Windows.

Name parameter

Cakewalk for DOS allows two 15-character names for each track. Cakewalk Apprentice for Windows has a single name of up to 128 characters. When loading Cakewalk for DOS files, the two names are combined with a "|" character between them.

New parameters: Volume and Pan

There are two new track parameters: Volume and Pan. They work much like the starting Patch parameter for a track, but obviously to send Volume (Controller 7) and Pan (Controller 10) messages.

View/Tempo and View/Meter

In Cakewalk for DOS these windows are dialog boxes. While using them, you cannot use the rest of the program: you must open the dialog box using the View menu command, make your changes, then exit.

In Cakewalk Apprentice for Windows each of these is a separate window. When you start the program, the windows are icons along the bottom. Double-clicking on an icon restores the window to its normal size. The rest of Cakewalk Apprentice for Windows' views and menu commands may be used without closing the view. For example, you may start and stop playback while using any of these views.

Tempo view

In addition, the Tempo view looks very different. Instead of a list of tempo changes, the Tempo view is a graphical window very similar to the new Controllers view. Instead of adding tempo changes one at a time, you simply draw the shape you want.

Note: The Cut, Copy, and Paste commands from the Edit menu work with both tempo and meter changes.

Meter/key signature view

The Meter view looks more like that in Cakewalk for DOS. It is still a list of meter changes which you add, change, or delete individually. However, each meter entry is now a combination meter and key signature.

Note: The Cut, Copy, and Paste commands from the Edit menu work with both tempo and meter changes.

Drag-and-drop editing

The Measure pane of the Track/Measure view lets you drag selected measures to a new position. You may drag the original measures -- move them -- or drag a copy of the original measures. See the "Track/Measure view" chapter for more information. What we want to point out here is that you may drag multiple selected tracks to *multiple* other tracks. In other words, you may do "vertical block moves". (You can only move a single track at a time in Cakewalk for DOS, using "Edit/Paste to One track".)

Note: Drag-and-drop is the only way to accomplish this; there is no "Paste to Multiple tracks" command in Cakewalk Apprentice for Windows.

Mark/Region memory

The "Mark/Region memory" feature is no longer supported. For a more flexible way of associating times with text, see the Markers view.

Track/Sort

Cakewalk Apprentice for Windows 1.0 does not have a Track/Sort command.

Key macros

Cakewalk Apprentice for Windows does not have a built-in key macro function. Windows 3.1 provides a macro utility -- the Recorder application from the Accessories group -- which records both keystrokes and mouse actions.

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MIDI Sequencer and Multimedia Control Application for Windows 3.1

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Introduction

Welcome

Congratulations on your purchase of Cakewalk Apprentice!

> Before you do anything else, please remember to complete and return your Twelve Tone Systems registration card within 30 days of purchase.

If your package is missing this card, please call us right away.

We must have your serial number on file before we can provide you with technical assistance. What's more, we can't send you news about upgrades and other important information if we don't have your address. Please take a moment right now to handle this important matter.

Installation.

Please refer to the separate *Installation Guide*.

When you're ready for more power

Making music with MIDI is fun. As you become more skilled and comfortable, you should take a look at Cakewalk Professional for Windows, the "big brother" of Cakewalk Apprentice. See Appendix A, page 117, for more information about the additional features and benefits provided by Cakewalk Professional for Windows.

Technical Support!

Sooner or later, you may have a problem.

We are eager to help you use Cakewalk Apprentice as best you can. Twelve Tone Systems is widely-respected for the quality of its technical support. If a trained technical support representative can't answer your question, he or she refers it to the programmer -- and either relays the answer or has the programmer call you back directly.

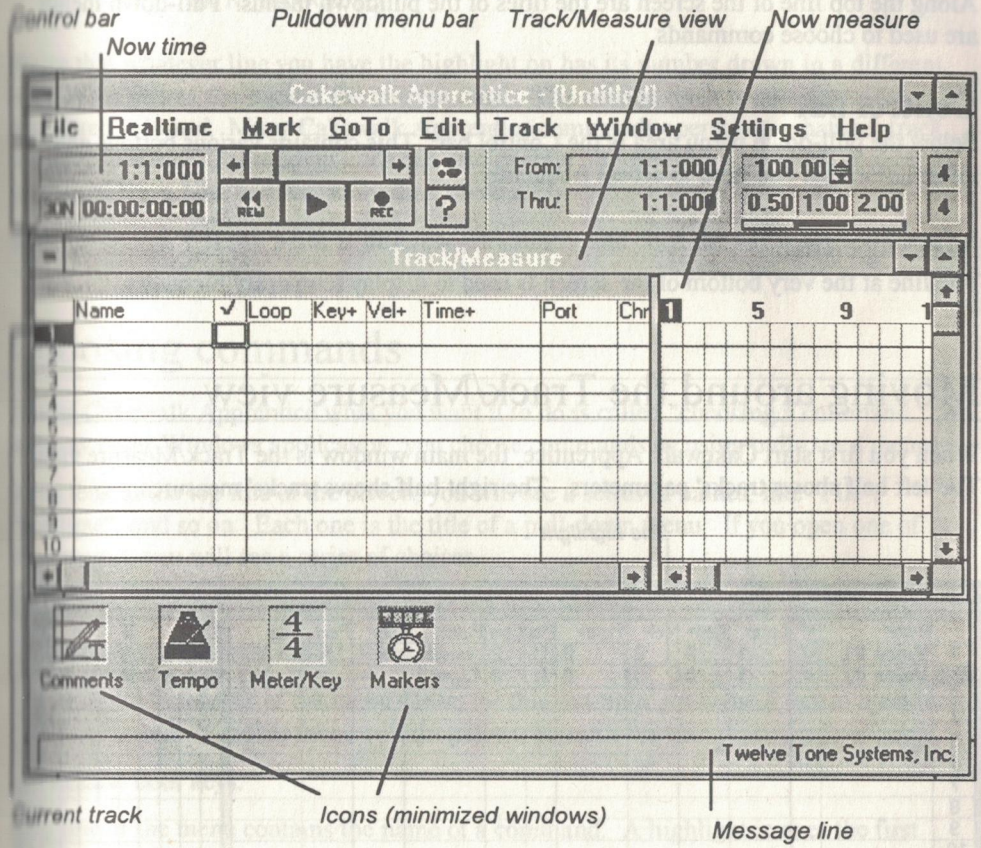
However, we can't be free consultants on any topic related to computers and MIDI. Questions about using DOS or using your particular MIDI equipment are not fair game. We have thousands of registered owners. We are fully capable of helping all of you with our products -- but only if you help us help you all.

Before you call, please...

- Send in your registration card. One of the few absolute rules we have is that we don't help software pirates -- only registered owners. If your card is "in the mail," we may be able to provide a little amount of help with installation problems, etc.
- Double-check this *User's Guide*. Are you sure the answer isn't here -- and that you can save yourself a phone call? Check the *Installation Guide* and the README.WRI file, too.
- Do some experimenting: try to narrow down your situation to one or two specific questions or problems. Please don't make us sit on the phone while you switch MIDI cables and learn how to use your equipment. Other folks may need help, too.
- Have this manual with you, and try to use a phone near your computer.
- Have your serial number handy. It's printed on the label of your original disk (the 3.5" disk if you have both formats, not the 5-1/4" disk). We ask for your serial number to ensure that we help you, a registered owner -- not a software pirate.

  Write your serial number here: GH/96 P/N 0401327130
- Call our Cakewalk Apprentice tech support phone line. This is (617) 924-6478. If it happens to be busy, then all of our support people are handling calls, so calling our other lines won't really help.
- Call during our technical support hours. These are currently weekdays from 1 P.M. to 6 P.M., Eastern Standard Time, and are subject to change.

Basic Tutorial



The screen layout

The Cakewalk Apprentice screen is divided into several sections. We'll run through them quickly now. Various chapters discuss them in more detail later.

Pull-down menu bar

Along the top line of the screen are the titles of the pulldown menus. Pull-down menus are used to choose commands.

Control bar

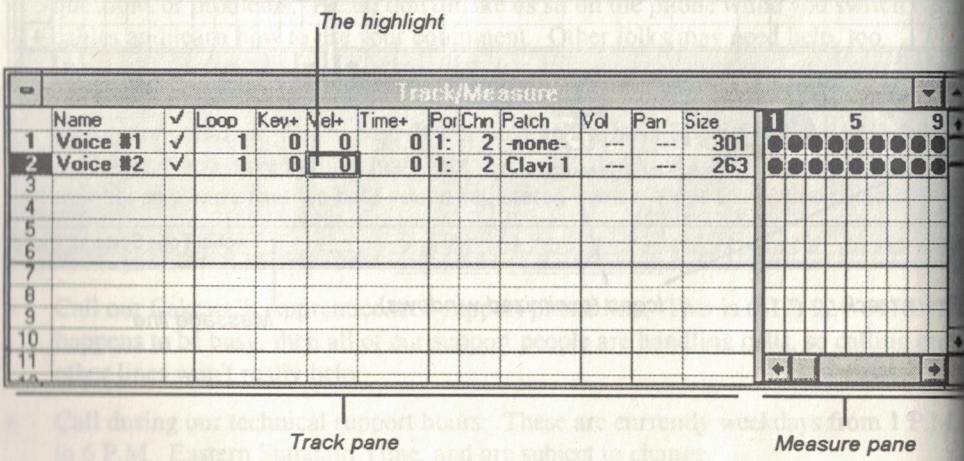
Below the pull-down menu area is the Control bar. This contains various buttons and information that you need to access frequently.

Message line

The line at the very bottom of the screen is used to display temporary messages.

Moving around the Track/Measure view

When you first start Cakewalk Apprentice, the main window is the Track/Measure view. The left half shows tracks' parameters. The right half shows tracks' measures.



Moving the highlight

The *highlight* shows which is the current track and column (see preceding picture). You can use the four arrow keys -- UP, DOWN, LEFT, and RIGHT -- to move around. Try this now. Press DOWN a couple times and you will see the highlight move down a couple lines.

Note: These keys are often located on the numeric keypad at the right side of the keyboard. If the keys are acting as numbers rather than arrow keys, try pressing the NUMLOCK key.

Notice that whatever line you have the highlight on has its number drawn in a different color. This means the track is the current track. The current track is automatically considered *selected*. Many Cakewalk Apprentice commands operate on whatever track you have selected. (Most commands can also operate on more than one track at once; later you'll learn how to select more than one track.)

With the mouse, you can point at different parameters and click the left mouse button.

Choosing commands

Telling Cakewalk Apprentice what you want it to do is called "choosing a command." As with any other Windows application, you choose commands by using pull-down menus.

If you look at the top line of the screen, you will see a series of names, like "File", "Realtime", and so on. Each one is the title of a pull-down menu. If you open one of these menus, you will see a series of choices.

Try opening a pull-down menu now. It works like this:

1. Press and hold down the ALT key.
2. Press the first letter of the menu's title: for this example, press the F key to open the "File" menu. The File menu will drop down beneath the title.
3. Release both keys.

Each line of the menu contains the name of a command. A highlight is over the first choice. If you keep pressing DOWN, the highlight will move down through the choices. Pressing UP takes you in the other direction.

Once the highlight is over the choice you want, you can press ENTER to choose it. Do not try this yet; we will try it later in the tutorial.

Tip When the highlight is over a command, you can press F1. This is the help key.

If you want to get out of the pull-down menus, you can press the ESCAPE key (labeled "ESC" on many keyboards). You can use ESCAPE many places in Cakewalk Apprentice to back out of something if you change your mind.

4. Try this now. Press ESCAPE twice, and continue on to the next section.

Loading a work file

For this tutorial, we'll load a demonstration work and play with it.

> Note: We usually refer to the music you are creating with Cakewalk Apprentice as a work. You can substitute "song" if that's the kind of music you usually make. We're not trying to be pretentious, but not every piece of music is a "song".

1. The command to load a work from a disk file is called "File/Open". Open the "File" menu as you learned in the previous section and choose the "Open" command.

A dialog box appears. Within the window is a list of file names. There might be only one right now.

2. Select the file `DEMO.WRK` from the list and press OK.

After a few seconds the file will be loaded. The first couple lines of the Track/measure view now have names and numbers.

Playing

Now that you've loaded a work, let's try playing it. First, a quick check list:

- ✓ You'll need to have your synthesizer turned on, and connected as described in the *Installation Guide*.
- ✓ Your synthesizer should be set to receive on MIDI channel 1. If you are unsure how to set the MIDI channel, now would be a good time to check the owner's guide. In particular, look for a section with instructions about using it with a *sequencer* like Cakewalk Apprentice. There may be other information you'll want to learn about; for example, some synthesizers may require you to select a "Multi" mode for use with a sequencer.
- ✓ The demo song will sound best if you select for MIDI channel 1 a short, percussive sound like "Piano" or "Clavichord".

All set? Let's go!

1. Press the SPACEBAR or click on the play button in the Control Bar. The demonstration work will begin playing. Down towards the bottom center of your screen you will see some numbers changing. This is the Now marker, which shows the current count of Measures, Beats, and Ticks. For instance, "1:1:0" is Measure 1, Beat 1, Tick 0.

Hint: If you don't hear anything but the numbers are changing, refer to "Connecting Your MIDI Equipment" in the *Installation Guide*.

2. After letting the work play for awhile, press SPACEBAR or click the play button again, and playback will stop. Note that you use the same key to start and stop playback.

3. If you start playback again, it will resume from the present point. Try this, then shut off playback again.

4. Now try pressing W or clicking the rewind button in the Control bar. This "rewinds" to the beginning. Most of the tracks have a column which says "m". These tracks are muted. The first two tracks have a check mark. These tracks are playing.

Muting a track.

1. Start playback.
2. While the work plays, point to track 1 in the column which has the check mark.
3. Double-click. (This means to click twice, quickly, on the same spot). The check mark changes to an "m" and you cannot hear track 1 anymore.
4. Double-click again. The check mark reappears and you can hear track 1 again.

Recording

Now try recording a track yourself. It doesn't have to be an inspired solo that fits well with the demo song. You can just try making a little noise!

1. Pick an empty track (one with zero in the *Size* column). Move the highlight to that line.
2. Move the highlight to the column with *Chn* (Channel) at the top.

Synthesizers are sort of like TV sets: you can set them to receive notes on a certain "channel". Each MIDI channel can play a different type of sound. So, by setting each

Cakewalk Apprentice track to transmit its notes on a different MIDI channel, each track can have a different sound.

For now we just need to make sure that Cakewalk Apprentice is routing what you play on the keyboard to a MIDI channel that your synthesizer is set to respond on. You should have already set this up while trying "Playing".

Note: Normally, your synthesizer's keyboard plays the synthesizer's sound generators directly. But Cakewalk Apprentice "disconnects" this so that it can route the keyboard to different sound generators in a more flexible way. (It sends a "Local Control OFF" message; for more information, please see page 112).

3. Try hitting a key on your synthesizer keyboard. If you can't hear any sound, try changing the MIDI channel number using the computer's PLUS (+) and MINUS (-) keys while you're hitting synthesizer keys. Do this until you hear some sound.

Hint: If you don't hear sound on any of the 16 MIDI channels, you probably don't have the MIDI cables connected properly. Refer to "Connecting Your MIDI Equipment" in the "Installation Guide" chapter. Or, if you're using a sound card inside the computer, it may have a Windows utility program that controls the volume of the card.

4. Rewind to the beginning (you don't have to do this before starting recording; we're just doing it for this example).

> After the next step, several things will happen quickly. You may want to read ahead up to step 7 before actually starting recording.

5. To start recording, press R or click the record button in the Control bar.

You will hear the metronome start beeping.

There is a one measure "count-in" before recording starts. Any notes you hit now will be included, but placed at the time recording actually starts, so it doesn't matter if you "jump the gun" a bit.

After four metronome beeps, the count-in measure is over. Recording starts for real.

6. Play whatever you wish on your MIDI instrument.

You will hear the original tracks playing along with you. You can keep recording new material beyond the end of the existing work if you wish.

7. When you want to stop recording, press R or click the record button again. As with playback, the same key turns recording on or off.

If Cakewalk Apprentice received what you played you will see a window pop up and ask you, "Keep take?". This is asking you if you want to keep the "take" you just recorded.

8. Press Y: you might as well answer "Yes" now, since we're not concerned at the moment about whether you performed perfectly!

Notice that the screen has changed. The track on which you recorded has automatically been set to playing (the "m" is now a check mark). Also you will see that the right half of the Track/Measure view shows that something is happening in the measures of the track -- that's what you just recorded.

9. Try rewinding and starting playback. You should hear your new track playing along with the originals.

If you like, go ahead and record other tracks. Try answering "No" to the "Keep take?" prompt if you don't like something you recorded and don't want to save it on the track.

Points and tips to remember about recording:

- If you record on a track that already has something on it, Cakewalk Apprentice normally merges or "blends" the recorded material with the existing material.
- You can start recording in the middle of a song. You don't have to rewind first, even though we did so in our tutorial example.
- You can't play back a take before you decide whether to keep it. However, Cakewalk Apprentice has so many tracks that this isn't much of a problem. If you aren't sure about a take, go ahead and keep it. Later, you can delete the track, or even mute it and keep it as an old version while you record new takes on fresh tracks.

Saving a work

It's important to save your work to a disk file. If you don't, it will be lost when you quit Cakewalk Apprentice. For the same reason, it's good to get in the habit of saving your work frequently, just in case a power failure or other disaster should wipe out the work in the computer.

Disk files are permanent storage of your work. When you load a work from disk, the original still remains on disk. So, you don't have to save your work again if you don't make any changes to it. For instance, if you just load your work and play it back without recording anything new, you don't have to save it.

Cakewalk Apprentice automatically checks to see if you've changed the work since you loaded it. If it has changed and you try to quit Cakewalk Apprentice without saving, Cakewalk Apprentice will stop you and give you a chance to save.

Tip: You can tell whether the file has changed by looking at the file name in the caption of the main window: if there is an asterisk "*" after the name, then the file has changed.

Try saving your changes now. We'll start by choosing the "File/Save As" command:

1. Choose "File/Save As".

Remember: In this manual, names of commands are written as the name of the menu, a slash, and the name of the command. For example, if we say to choose the "File/Save As" command, we mean to open the "File" menu and pick the "Save As" command.

2. Type in the new name "MYDEMO" and press Enter.

The cursor will change to an hourglass while the file is being written to disk.

If you had given the name "DEMO" or the name of any other file that already exists, Cakewalk Apprentice would check with you now about replacing it. If you decide to replace a file, the existing version will be erased and replaced by your new changes. So, be sure to answer No and re-save under a different name if you want to keep the original version intact on diskette.

Quitting Cakewalk Apprentice

To quit Cakewalk Apprentice, choose the "File/Exit" command. Or, close Windows Program Manager, which closes all programs and exits Windows.

Conclusion

You now know how to:

- Start Cakewalk Apprentice.
- Understand the screen layout.
- Move around the Track view.
- Choose commands.
- Load a work from a disk file.
- Play a work.
- Record a work.
- Save a work to a disk file.

You can create a lot of music using just this basic set of operations.

Editing Tutorial

The previous tutorial covered the basics of using Cakewalk Apprentice: recording and playing, loading and saving files.

This tutorial introduces you to some of Cakewalk Apprentice's editing commands. It assumes that you learned in the previous tutorial how to choose commands from pull-down menus, how to load a file, and how to start playback.

Overview

For this tutorial, we'll take the theme from "Row, Row, Row Your Boat" and create a complete four-part round using Cakewalk Apprentice's editing commands. The result will not be the most exciting music you've ever heard, but the process of getting there will teach you about using some of Cakewalk Apprentice's editing commands.

For this tutorial to work smoothly, you will need a synthesizer set to receive on MIDI channel 1 and connected to the MIDI Out Port 1 of the MIDI interface.

Load ROWROW.WRK

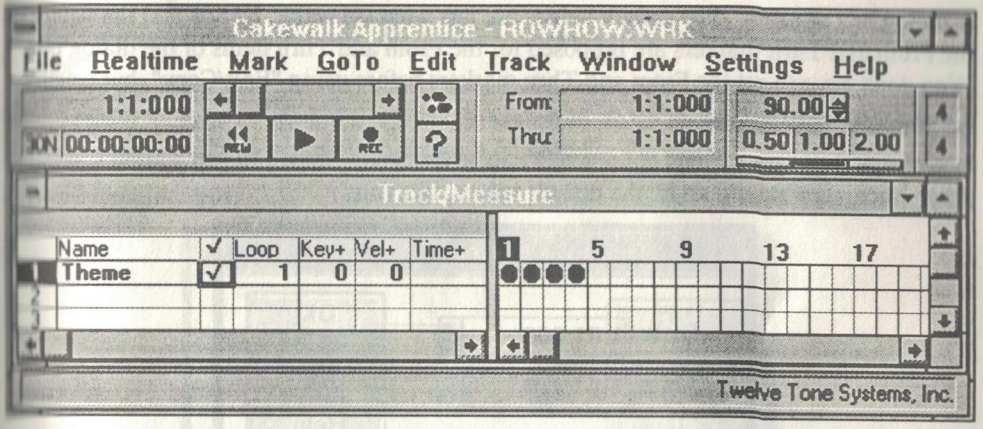
We'll begin by loading the workfile `ROWROW.WRK`. This workfile contains the four-measure theme on track one.

Load it now. Start playback and listen to the theme.

The measure pane

Because it gives you a "bird's-eye" view of your work, the measure pane -- the right half of the Track/Measure view -- is especially suited to edit operations involving cutting, copying, and pasting.

In the upper-left-hand corner of the grid, you will see four squares with rounded corners. This shows you that track 1 has events in the first four measures. Here is what your screen should look like:



Make 4 melodies out of the original melody

Now we'll add three repetitions of the four-bar theme by using the Copy and Paste commands.

Mark Track 1

First we want to mark (or select) the four measures.

1. Point to the first measure.
2. Press and hold the left mouse button.
3. Drag to the right, until you get to the fourth measure. Notice that as you drag, the cells you've dragged over are drawn in reverse, showing you that you are selecting the measures.
4. When you get to the fourth measure, release the mouse button.

Look up on the Control Bar and notice that the From marker is set to 1:1:0. That is where you started dragging. The Thru marker is set to 4:1:119, which is the end of the measure where you stopped dragging.

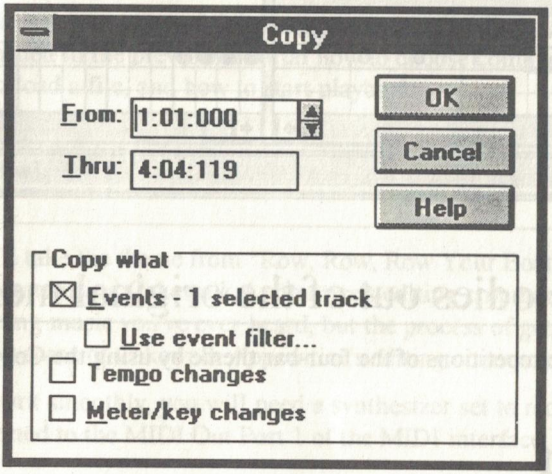
Because you clicked on track 1, it is automatically selected.

Use the Copy command

1. Choose "Edit/Copy" from the pull-down menu.

A dialog box appears. The default values are just what we want. Notice that the values of the From and Thru markers are proposed for the From and Thru items of the dialog box. (You don't *have* to set the From and Thru markers before using "Edit/Copy", but usually it's easier to do so.)

Notice that there are various options that can be checked. Since you just started Cakewalk Apprentice, they should all be the default values, like this:



We want to copy events from the one selected track. For this tutorial, we don't need to concern ourselves with using an "Event Filter" or Tempo and Meter/key changes.

2. Press OK to accept what is in the dialog box.

The Copy command places a copy of the region you marked into the Scrap buffer.

Note: The Scrap buffer is used with commands like Cut and Copy to hold material that you may later Paste.

Paste 3 more repetitions

Now we want to paste in three additional copies of the theme.

1. Point to measure 5 of track 1, the first blank measure.

2. Click the left mouse button. If you look up on the Control Bar, you'll notice that the Now marker says 5:1:0.

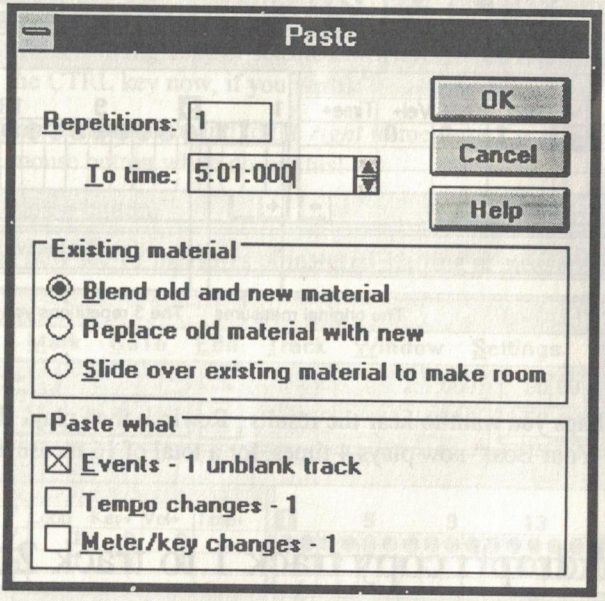
3. Choose "Edit/Paste" from the pull-down menu.

A dialog box appears. Notice that the value of the Now marker is automatically loaded into the "Starting at time:" item.

We want to paste three repetitions. So, we want to change the "Repetitions" item to be "3", not "1".

4. The cursor is positioned at the "Repetitions" item, so go ahead and type "3". Or, use the up and down buttons to increase or decrease the value.

It should look like this:

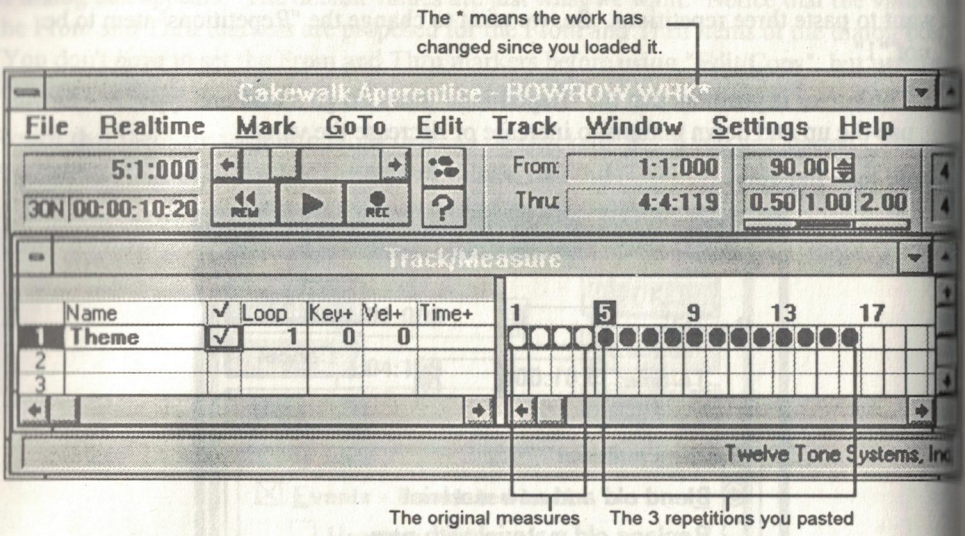


Notice that paste has checked **Event - 1 unblank track**. It knows that the Scrap buffer contains the events from our "Edit/Copy". It hasn't checked **Tempo changes** or **Meter/key changes** because we didn't copy those.

The default option here is **Blend old and new material**. This means that if there were any existing events where we are pasting, they would still be there afterwards. The new material will be blended with the old. Remember that a sequencer contains events at various times, and there can be more than one event at the same time. So it's not unusual to want to lay one series of events one top of another. The other options -- replacing the old material and sliding over the old material -- can be useful, too. Actually, in this example, it doesn't matter which option we choose, because there is no existing material in the track at all, beginning at measure 5.

5. Press OK to accept what is in the dialog box.

The Paste command now inserts three repetitions of the Scrap buffer into the song. Notice that there are now 16 measures in track 1:



Test drive

At this point, perhaps you want to hear the results. Rewind, then play. The theme of "Row, Row, Row Your Boat" now plays 4 times, for a total of 16 measures.

"Drag and drop": copy track 1 to track 2

Now we want to add another part playing the theme a measure later. We'll copy all of track 1 to track 2.

Mark track 1

First, we need to select all 16 measures of track 1

1. Clear the existing selection by pointing to the cell for measure 1, track 1. Click and release the button without moving the mouse outside the cell. The reverse video should disappear.

2. Point again to the cell for measure 1, track 1. Click, but this time, hold the mouse button and drag to the right until measure 16 becomes selected.

Drag and drop

Now we'll learn a faster way to copy and paste measures. You can do this by dragging and dropping.

You've selected measures 1 through 16 of track 1. Now do the following:

1. Press and hold the CTRL key.

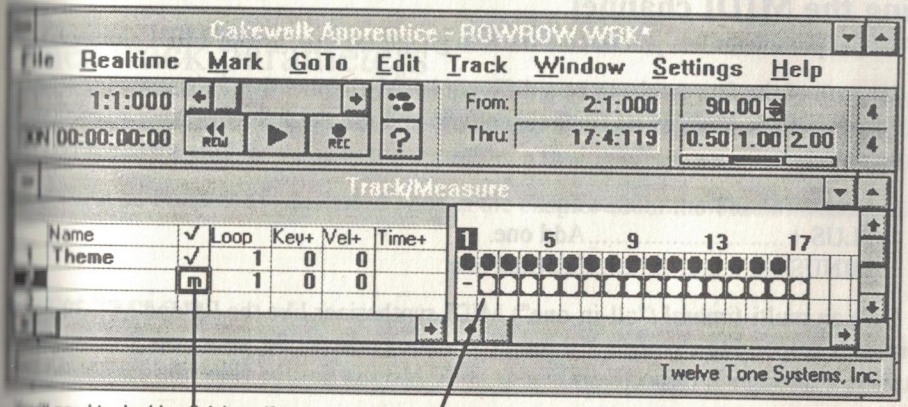
   Tip: If you *don't* hold down the CTRL key, then you will drag-move instead of drag-copy. The original won't be left behind.

2. Click on measure 1, and hold the button until the cursor changes to the "drag-copy" cursor, and you see "Drag copy of selected measures..." on the message line. (You can release the CTRL key now, if you wish).

3. Drag cursor *down* to track 2, and to the *right* to measure 2 -- remember you're still holding the mouse button while doing this!

4. Release the mouse button.

Voila! You should now see 16 measures of material starting at measure 2 of track 2:



You'll need to double-click here if you want to un-mute the track.

You released the mouse button while pointing to measure 2 of track 2, so that became the starting location for the measures you dropped.

Un-mute track 2

Before you try to play this back, notice that track 2 is still muted. There is an "m", not a check mark. Pasting something to a track does not automatically un-mute it.

Double-click on the "m" for track 2 to change it into a check mark. Now the track will be heard during playback.

Adding more parts

If you wish, you can add more parts, each starting a measure later.

"Orchestration"

If you have more than one synthesizer -- or a synthesizer or sound card that can play mo than one MIDI channel -- we can do some "orchestration."

What we want to do is have each track sent out on a separate MIDI channel. This lets u set up a separate sound on each MIDI channel, which we will do using MIDI patch changes.

This part of the tutorial is tough for us to describe precisely, because it depends on the synthesizer(s) you have.

Setting the MIDI channel

The Channel parameter lets you force a track to go out on a particular MIDI channel.

1. Set each of the four tracks to be a different MIDI channel that exists in your setup For each track, click on its Channel column and use the following keys to change the number:

Press	**To**
PLUS +	Add one.
MINUS -	Subtract one.

If you have an multi-timbral ("all-in-one") MIDI synthesizer like the Roland MT-32, it will probably respond to channels 2 through 5, among others. So, set tracks 1 through 4 to channels 2 through 5, respectively.

2. Try playing the song again. If a part is missing, then you've assigned its track to a MIDI channel that doesn't exist in your setup.

Setting the starting patch

The Patch parameter lets you specify a starting patch for each track.

Hint: MIDI uses numbers from 0 to 127 to select patches. When you first install Cakewalk Apprentice, you will see numbers for the Patch parameter, too. But you can use the "Settings/Patch names" command to assign a list of names -- depending on your synthesizer. One of the lists of "names" is the set of numbers 0..127, and that's what Cakewalk Apprentice assumes until you use "Settings/Patch names".

You can change the Patch parameter by moving the highlight to that column of a track and using the following keys:

Press	To
PLUS +	Add one.
MINUS -	Subtract one.
RIGHT SQUARE BRACKET]	Add 10
LEFT SQUARE BRACKET [	Subtract 10

Hint: You can change the Patch parameter while the song is playing. In fact, you can change any of the track parameters during playback to hear the results immediately.

Other track parameters

There are many other parameters besides Patch and Channel in the Track/Measure view. You can specify a pitch or velocity transposition, a timing offset, a name, and more.

All of these parameters are described later in the chapter about the Track/Measure view.

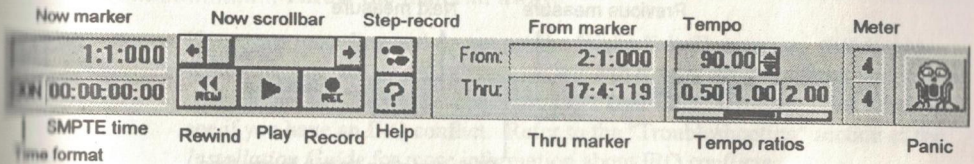
Conclusion

This completes our basic editing tutorial. You should now know how to:

- Select measures in the Measure pane.
- Copy tracks with "Edit/Copy".
- Paste material with "Edit/Paste".
- "Drag-and-drop" selected measures.
- Set a MIDI channel for a track using the Channel parameter in the Track pane.
- Set a starting patch for a track using the Patch parameter in the Track pane.

You're well on the way to becoming a skilled Cakewalk Apprentice user. The remainder of this *User's Guide* covers in depth all of Cakewalk Apprentice's powerful and easy-to-use features.

Control bar



The Control bar is part of Cakewalk Apprentice's main window. Most of the buttons on the Control bar give you quick access to commands that are also available from Cakewalk Apprentice's pull-down menu. The following discussion of Control bar functions refers to the corresponding pull-down menu commands. For complete descriptions of these commands, refer to the chapter for that command menu. For example, descriptions of all Realtime commands are in the "Realtime Menu" chapter.

Note: By default the Control bar is displayed at the top of the main window. You can choose to put the Control bar at the bottom of the window, by selecting from the main menu: "Window/Options/Control bar at bottom".

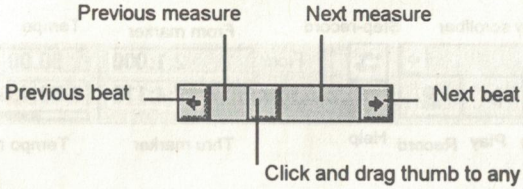
Now marker and SMPTE time

The *Now marker* is the current position in musical time (measures:beats:ticks). Beneath it is the same time shown in SMPTE/MTC format (hours:minutes:seconds:frames). Click on either time display to activate the "GoTo/Time" dialog box and enter a new time.

The box to the left of the SMPTE time shows the SMPTE/MTC format. By default it is "30N" (30-frame Non-drop). Click on this to get the "Settings/Time format" dialog box.

Now marker scrollbar

The Now marker scrollbar shows the current position and lets you change it. Click on the arrow buttons, click to either side of the scrollbar thumb, or drag the scrollbar thumb left or right.



Note: As the Now marker changes, Cakewalk Apprentice's window views update to reflect the new time. This happens both when you change the Now time and during playback.

Rewind button

The Rewind button is a shortcut for "Realtime/Rewind". It stops playback or recording and takes you to the beginning (1:1:0).

Play button

The Play button is a shortcut for "Realtime/Play". It starts and stops playback from the current position (Now marker time).

Shortcut key: SPACEBAR.

Record button

The Record button is a shortcut for "Realtime/Record". It starts and stops recording.

Shortcut keys: R. SPACEBAR also turns record off.

Recording starts at the current position ("Now"). By default, there is a one-measure count-in, during which the metronome counts off before recording actually starts. You

can change the count-in and other metronome options using the "Settings/Metronome" command.

When you stop recording, any MIDI data received is sitting in a temporary buffer. Cakewalk Apprentice then asks if you want to keep the take.

Press.....	To
Y.....	Insert the material into the track.
N.....	Throw the material away.

Note: If you stop recording and do not get the "Keep Take?" message, that means Cakewalk Apprentice did not receive any MIDI data. Double-check your cable connections and master keyboard (or other controller) settings. Also check to see if you have an IRQ conflict. Refer to the "Troubleshooting" section of the *Installation Guide* for more information about IRQ conflicts.

The newly-recorded material is merged with any existing material. It goes in the track that you had the highlight on in the Track/Measure view when you started recording.

Step record button

This button is a short-cut for selecting "Realtime/Step record" (see page 81). When enabled, you can use your MIDI keyboard to record notes one rhythmic step at a time. Clicking on this button brings up the Step recording dialog box. Step record mode is enabled until you close this dialog box.

From/Thru time display

The From and Thru markers are like "block begin" and "block end" indicators: they show the currently-selected time region. Clicking on the time displays brings up the "Mark/From value" or "Mark/Thru value" dialog boxes.

Tempo

The current tempo map entry is shown here. Click on the up and down arrow buttons to the right of the display to change the tempo, or click on the tempo amount itself to type in a new value.

Note: This changes only the current entry of the tempo map. To create/delete multiple tempo changes, use the Tempo view.

Tempo ratios

These buttons control the current tempo ratio. The tempo ratios are values by which the base tempo is multiplied. For example, a ratio of 0.5 makes the real tempo be one-half of the base tempo, while a ratio of 2.0 makes it twice as fast. The ratios do not change the "shape" of the underlying tempo changes: they affect all the changes by the same amount.

Click on one of the offset buttons to select a tempo ratio. Click on an ratio value to change it.

Tip: Use the three tempo ratios for a "slow," "normal," and "fast-forward" facility. The default ratio values are set for that use.

Meter

Pressing this button lets you change the current entry in the Meter/Key signature map.

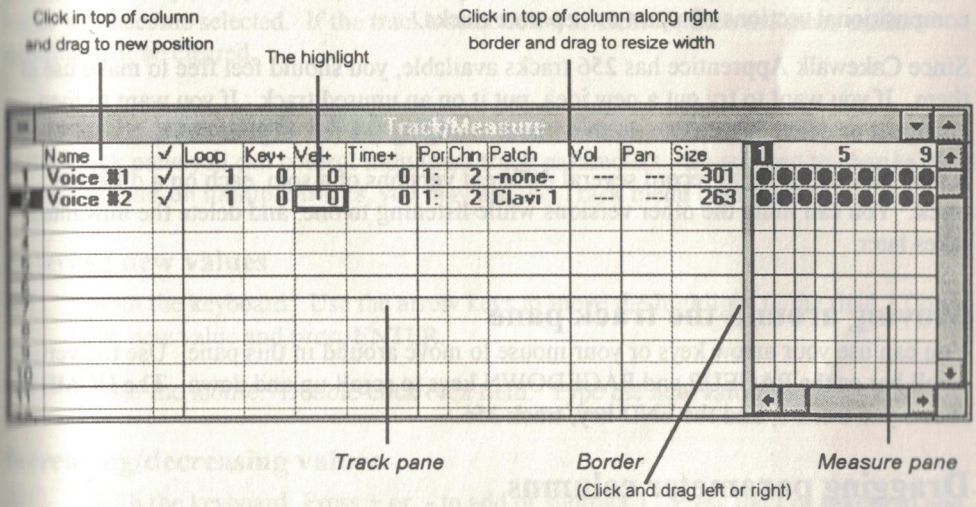
Note: This changes only the current entry of the meter map. To create/delete multiple meter changes, use the Meter/Key signature view.

Panic button

Edvard Munch's "The Scream" -- yes, that's what this icon is supposed to be! -- serves as the panic button. Pressing this stops playback, sends note-off commands for each note on each MIDI channel of each port, and resets continuous controllers on each MIDI channel of each port.

Use this when you are experiencing "stuck" notes (durations held continuously) or MIDI feedback loops (caused by turning on a MIDI instrument's Local Control, and enabling Cakewalk's own MIDI Thru function). For a better way to solve problems with sustain pedal events, however, see "Settings/MIDI Out", page 111.

Track/Measure view



The Track/Measure view is Cakewalk Apprentice's main window and is displayed automatically each time you start the program. It is divided into two sections: the Track pane, and the Measure pane. These two panes are divided by a vertical border that you can drag left or right. Double-clicking the border "maximizes" the Track pane.

Track pane

The Track pane lets you see and manipulate different parameters for all 256 available tracks. This is where you assign channels, patch names or numbers, ports, and other parameters to tracks. Use the Track pane to adjust individual track offsets, such as key, velocity, and time.

Working with tracks

A track in Cakewalk Apprentice is much like a track on a multi-track tape deck. It is a convention for organizing different parts of music into a whole piece. You can put each musical element on its own track-- a bass line on track 1, an electric piano part on track 2, a horn part on track 3, and so on. All the tracks run parallel together in time.

You don't *have* to put separate parts on separate tracks. Your whole song with material for all 16 MIDI channels could be on a single track. But for you own convenience, it's better to put different musical parts on different tracks. This makes it easier to change a particular part without affecting the other parts. You can even set up more than one track for the same port and MIDI channel, for example, if it's useful for you to put different compositional sections of a part on separate tracks.

Since Cakewalk Apprentice has 256 tracks available, you should feel free to make use of them. If you want to try out a new idea, put it on an unused track. If you want to then change it or delete it, you can do so without changing the rest of your work.

It also may be useful to record several different versions of a solo, each on a different track. You can mute the other versions while listening to one, and delete the unwanted takes later.

Moving around the track pane

You can use your arrow keys or your mouse to move around in this pane. Use the vertical scroll bar or the PAGEUP and PAGEDOWN keys to scroll up and down. The HOME key shows you track 1, and the END key, track 256.

Dragging parameter columns

You can also customize the Track pane to display parameters in the order you want to see them. By clicking on the header of the parameter column, such as Key+, you can drag the parameter column left or right, and drop in a new position.

Selecting tracks

Many Cakewalk Apprentice commands work by having you first select the track on which the command is to operate. Selecting a track has nothing to do with whether it plays or not-- it just means to mark it.

By default, whatever track you have the cursor on is selected. This selection "floats" around with the cursor. As you move to each track, it automatically becomes selected

You can also make a "sticky" track selection so that the track stays selected when you move the cursor off of the track. This allows you to select multiple tracks for editing or viewing in other multi-track windows (Staff and Event-list).

Clicking on the track number column makes or clears a sticky selection. If a track is selected, the number is drawn in reverse video.

If you click on a track to select it or clear its selection, you can continue to hold the mouse button and drag over other tracks to make them the same. For example, if the first track became selected when you clicked on it, so will the other tracks you drag over.

Double-clicking on any track number selects or clears the selection of all non-blank tracks. If the track that was double-clicked became selected, then all the other non-blank tracks will become selected. If the track's selection was cleared, then the other tracks' selection will be cleared.

Changing parameter values

In the Track pane you can control individual track parameters. If you need to change the same parameter on multiple tracks, you may use the Track menu commands.

Entering new values

With the keyboard: Use the arrow keys to move the highlight to the field. Type the new value and press ENTER.

With the mouse: Double-click on a field. Type the new value and press ENTER.

Increasing/decreasing values

With the keyboard: Press + or - to add or subtract 1. Press the] or [keys to add or subtract 10.

With the mouse: Point to the value, click and hold the left button, and slide the mouse toward or away from you. The parameter value increases or decreases as you slide the mouse. You may also press the right mouse button to make the values change by ten.

Description of track parameters

Here is a quick summary of the parameters for each track:

Parameter	Meaning
Name	Name of the track
✓(Status)	Playing status of the track
Port	MIDI output port
Chn	Forced MIDI channel
Key+	Realtime pitch transposition
Vel +	Velocity offset
Pan	degree of panning left (0-63) or right (65-127)
Size	Number of events the track holds
Patch	Starting patch name or number assignment
Loop	Number of times the track plays
Vol	Starting volume setting for that track
Time+	Timing offset

Following are descriptions of each parameter.

Name: Giving a track a name.

Each track has a name, which you may use for any purpose you wish.

✓ (Status): Playing, muting or archiving tracks.

In the Status column:

This	Means
✓	Playing
m	Mute
a	Archived

This parameter tells whether the track is playing, muted (silent), or archived. During playback, you can toggle a track between play and mute modes. Archived tracks, however, cannot be un-archived during playback.

Note: Cakewalk Apprentice preserves the state of muted and archived tracks when you save the file as a Cakewalk .WRK file. If you save it as a .MID (Standard MIDI File), however, archived and muted tracks are deleted.

Archiving a track

You *archive* a track with the "Track/Archive" command. This is like muting a track, but more "severe." Normally, Cakewalk Apprentice processes muted tracks during playback so that you can interactively un-mute them without stopping. This processing can be a lot of work for the computer if there are many dense, muted tracks. Track archiving lets you retain many silent tracks without incurring any performance penalties.

If you encounter timing problems, try archiving muted tracks that you won't need to unmute during playback -- for instance, tracks where you are storing alternate versions of a part you are currently not using. This will allow Cakewalk Apprentice to ignore them, improving performance.

The "Track/Archive" command toggles the archived status of all selected tracks at once. "Toggles" means that non-Archived tracks become Archived, and vice versa.

Time+: Sliding a track earlier or later.

This parameter adds an amount to all the times in the track. For instance, if you specify 3 the track will play 3 ticks later.

You can use very small delays for "feel factor" experiments where you make a part lag behind. Or create a chorus or slap echo effect by cloning a track and applying a small offset.

You can also use larger time offsets to shift a track many beats or measures later. See the description of the *Loop* parameter below for an example of doing this to include an introductory silence for a looping track.

Note: This does not change the actual time stored for each event. It merely changes the time during playback. To permanently change the times, you can either edit them individually or use the "Edit/Slide" command.

Channel: Forcing a track out a certain MIDI channel.

This parameter lets you force everything in a track out on a particular MIDI channel.

There are 16 MIDI channels, numbered from 1 through 16. If this parameter is set to one of those numbers, that is the channel on which the track will be forced out.

If you enter 0 for this parameter, then events on that track will not be forced to any particular channel. That is, they will be sent out on the channels they were recorded on. Instead of displaying 0 on the screen, Cakewalk Apprentice displays "--" to show that there is no forced channel.

Note: A forced MIDI Channel assignment does not actually change the original MIDI channel number that is stored for each event. It merely forces output to a certain channel during playback. To change the actual MIDI channels for events, either edit them individually or use the "Edit/Interpolate" command to search-and-replace MIDI channels in the track.

Note: When saving to a MIDI File, the MIDI channels stored with each event are converted to the forced Channel, if any, of the track they belong to. See page 120 for more information about MIDI Files.

Key+: Realtime pitch transpositions

Each MIDI note event has a key number, or pitch. This parameter transposes the key numbers of all note events in the track by a certain amount. The transposition amount can be a number between -127 and +127. The transposition is added to the real key number for each event. Each increment of 1 represents a half-step, so an octave is 12.

This parameter does not affect the actual key number that is stored for each note event. It merely forces a pitch transposition during playback. If you look at the notes in the Event-list view or Piano-roll view, they will still have their real pitches. To permanently change the pitches, you can either edit them individually or use the "Edit/Transpose" command.

Note: If the key offset value transposes the key number (MIDI note) outside the allowable MIDI range (0..127), the key number will be transposed to the lowest or highest octave within that range.

Vel+: Realtime velocity transposition.

Each MIDI note event has a *velocity*, which represents how fast (i.e., hard) the key was struck. This parameter transposes the velocities of all note events in a track. You can think of this as a platform on which the various velocity values ride, and which you can raise or lower.

The effect of changing velocities depends on the synthesizer. Some synthesizers do not respond to velocity information at all. For those that do, the precise effect may vary depending on the *patch* ("sound"): higher velocities usually result in louder and/or brighter notes.

Note: This parameter does not change the velocity that is actually stored for each event. It merely forces velocity transposition during playback. If you look at notes in the Event-list vew or Piano-roll view, you will still see their real velocities. To change the actual velocities, you can edit them graphically in the Velocity pane of the Piano-roll view, or use numbers in the Event-list view.

Patch: A starting "patch" for that track.

MIDI synthesizers can be told to switch to a particular sound by sending them a *patch change* message. The patch value is the number that the synthesizer gives to each of its sounds.

Note: There is some variation among manufacturers in how patches are numbered. Refer to the manufacturer's documentation regarding MIDI patch assignments.

Tip: You can refer to patches using names instead of numbers if your synthesizer is included in the list provided by the "Settings/Patch names" feature. For more information, see "Settings/Patch names" and "Settings/MIDI Devices".

You can insert patch change events at various points in a track by using the Event-list view. Often, however, a song needs only one patch for the entire track. The Patch parameter lets you specify a starting patch which Cakewalk Apprentice transmits every time you start playback.

This parameter works only if either of the following is true:

- The track has a forced MIDI channel. (This is the parameter in the column headed *Chn*.) Cakewalk Apprentice transmits the patch change on that channel.

or

- The track has at least one event. Cakewalk Apprentice uses the MIDI channel of the first event in the track.

Otherwise, Cakewalk Apprentice has no way of knowing on which channel to send the patch change -- and it doesn't send anything at all.

Port: Assigning a track to a MIDI output port.

The Port parameter assigns the track to a specific MIDI output port. Each port corresponds to a MIDI Out device that you've set up using "Settings/MIDI Devices". MIDI Out devices are assigned to Cakewalk Apprentice port numbers in the order they are listed in the "Settings/MIDI Devices" dialog box.

Loop: Making a track repeat.

This parameter lets you set the number of times the track will play. It can be a number from 1 through 9999.

Value.....	Meaning
1	Plays once (no looping).
2-9998.....	Plays the number of times indicated.
9999.....	Keeps looping as long as other, non-looping tracks are still playing.

Looping tracks repeat on *measure boundaries*. Cakewalk Apprentice plays a track until it reaches the last measure with an event. It counts off until the end of the measure, then repeats the track. For example, if a song is in 4/4 time, and the final event of a track falls on the first beat of a measure, there will be 3 beats of silence before the track loops back to measure 1.

Adding measures of rest before repeating

You can add measures of rest at the end of a track by including a "dummy" event after the final events in the track. As just explained, Cakewalk Apprentice will not repeat the track

until the end of the last measure. You can extend the track by adding a silent event in the desired measure.

For example, if the track ends in measure 2, but you want it to continue silently through measure 4 before looping back, use the Event-list view to insert a Text event anywhere in measure 4. Text events do not make any sound. Because the track now ends in measure 4, Cakewalk Apprentice will not repeat it until all four measures have gone by.

Adding a silent introduction for a looping track

You can use the track Time+ parameter to delay the beginning of the first loop. This is good for song introductions where the looped rhythm tracks aren't supposed to start yet.

To do this, for Time+ enter the time at which you want the track to begin. Note that after you press ENTER, Cakewalk Apprentice subtracts one measure when it displays the offset. (This is because musical times are numbered starting with 1, so an offset of +0 corresponds to 1:1:0, an offset of +1 measure corresponds to 2:1:0, and so on.)

For example, if you want a track to start at 4:1:0, then loop eight times:

1. Move to or click on the Time+ field for the track. Type "4:1:0" (or simply "4"), and press ENTER.
2. Click on the Loop field for the track. Type "8" and press ENTER.

Volume: Setting a volume level for a track.

The Volume parameter is for transmitting a MIDI Volume (Controller 7) event when playback starts.

You can insert Controller events for changing the volume at various points in a track by using the Event-list view. Often, however, a song needs only one volume setting for the entire track. The Volume parameter lets you specify a starting volume which Cakewalk Apprentice transmits every time you start playback.

Important: When you use the Volume parameter, you must also give the track a forced MIDI channel using the Channel parameter. Otherwise Cakewalk Apprentice won't know on which MIDI channel to send the volume event.

Note: Not all synthesizers respond to MIDI Volume (Controller 7) messages. All Cakewalk Apprentice can do is send the message; it's up to the synthesizer to act on it. If you're in doubt, consult the synthesizer manual's MIDI Implementation Chart.

Pan: Setting a track pan level before playback.

The Pan parameter is for transmitting a MIDI Pan (Controller 10) event when playback starts. Panning affects the stereo (left/right) balance.

You can insert Controller events for changing the panning at various points in a track by using the Event-list view or the Faders view. Often, however, a song needs only one pan setting for the entire track. The Pan parameter lets you specify a starting pan setting which Cakewalk Apprentice transmits every time you start playback.

Important: When you use the Pan parameter, you must also give the track a forced MIDI channel using the Channel parameter. Otherwise Cakewalk Apprentice won't know on which MIDI channel to send the pan event.

Note: If two or more tracks are set to the same MIDI channel and have different Pan parameters, then the highest-numbered track's Pan parameter will "win" when you start playback.

Note: Not all synthesizers respond to MIDI Pan (Controller messages 10). All Cakewalk Apprentice can do is send the message; it's up to the synthesizer to act on it. If you're in doubt, consult the synthesizer manual's MIDI Implementation Chart.

Size: The number of events in that track.

This shows you how many events are in each track. This number updates every time you add or delete events to or from that track.

Measure pane

The Measure pane shows you which measures of each track contain events. This makes it useful for "global" editing operations: you can quickly select tracks and measures before using Edit menu commands, and see the effect of commands like Cut, Copy, and Paste on many tracks at once. Also, you can directly copy or move selected measures using "drag-and-drop" techniques, discussed later in this section.

Working in the Measure pane

In the Measure pane, each track is a horizontal line of measure cells. Each cell is drawn in one of three states:

If the cell contains ..... Then the measure
Nothing..... Is empty, and so is remainder of the track.
A dash..... Is empty, but later measures of that track have events.
A rounded rectangle..... Contains one or more MIDI events.

Note: A track will have a dash for measure 1 if the track doesn't have any events, but does have some parameters set.

Changing the Now marker

Point to a measure cell and click the left mouse button to set the Now marker (the current position).

Selecting measures

Point to a measure cell, press and hold the left mouse button, and drag right to set the From and Thru markers. As you select measures they are drawn in reverse video.

To extend an existing selection to a new point, hold the SHIFT key and click there.

To clear the From..Thru selection, click within the selection. If you tap fairly quickly and without moving the mouse very much, you will avoid beginning drag-and-drop, which is discussed next.

Drag-and-drop editing

With your mouse, you can drag selected measures to a new position.

1. If you want to make a *copy* of the selected measures (leaving behind the originals), hold the CTRL key. Otherwise, you will be *moving* the measures to a new location.
2. Point anywhere within the reverse-video region of the selected measures, then press and hold the left mouse button.
3. Wait for the cursor to change shape.
4. Point to where you want the upper-left corner of the measures to be.
5. Release the mouse button.

Dropped measures will replace any existing material and do not create a hole where they're dropped (equivalent to the "Edit/Paste" command with the "Replace" option). If you change your mind while dragging, you can press the ESCAPE key, or, drop the measures outside the Measure pane (you'll see the cursor change to indicate dropping won't work). If you've already dropped the measures, use "Edit/Undo".

You can drag selected measures from more than one track. Just remember to release the mouse button while pointing at the upper-left corner of where you want the measures to go. You can move measures both horizontally (to new times) and/or vertically (to new tracks) this way.

Note: With both moving and copying, the dropped measures will replace any existing measures they are dropped on. To merge selected measures on to other tracks, use "Edit/Copy"; then use "Edit/Paste" with the "Blend old and new material" option.

Opening track editing views

From the Track/Measure view you can quickly open editing views by using the right mouse button. Point to a track and press the right button: a pop-up menu appears listing the different windows you can open. Choose the window you want, and the new view will open for that track.

Some views show you only one track at a time; others can show you multiple tracks.

This view.....	Shows you
Piano-roll.....	One track: the track you clicked on
Event-list	Multiple tracks: all of the selected tracks
Controllers.....	One track: the track you clicked on
Staff.....	Multiple tracks: as many of the selected tracks as will fit in 10 staves

If you click in the Measure pane on a measure cell, you will also set the Now marker so that the view you open will display the time of the measure cell. (If playback is underway, the Now marker follows playback and won't be changed. Instead, the window will open and follow playback. All of these views follow the Now marker as it changes, whether during playback or when you move through the work.)

Summary. Using the right mouse button...

- Click in the **Track pane** anywhere to open a view showing whatever the Now time is.
- Click in the **Measure pane** on a measure cell to open a view showing the time of the measure cell you clicked on.

Which track editing view should I use?

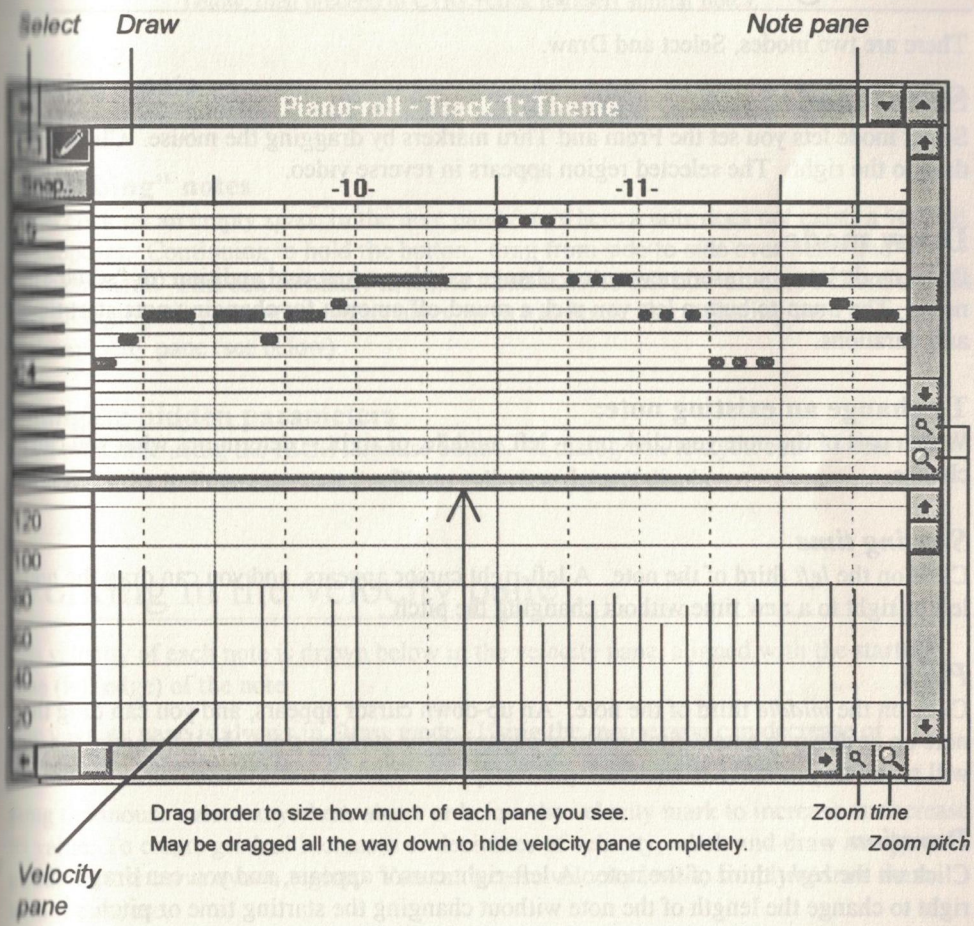
All of these views are different ways of looking at events in tracks. The Event-list view is the most basic, showing you the events much as Cakewalk Apprentice actually stores

them. The other views are alternatives that may be easier to use. For example, you can also work with note events using the Piano-roll view or the Staff view, depending on which format you find most convenient for the task at hand. Events like Wheel, ChanAft and Control are often easier to view and edit using the Controllers view, because you can see the shape formed by a series of these events.

You can even open two kinds of views for the same track and work with both at the same time. As you make changes in one window, the other will update.

After working with Cakewalk Apprentice for awhile, you'll find yourself instinctively using whichever view makes it easiest for you to accomplish a certain task. The following chapters discuss each of these four views in detail.

Piano-roll view



The Piano-roll view displays notes from a single track in a grid format that looks much like a player piano roll. Notes are displayed as horizontal bars. Pitch runs from bottom to top, with the left vertical margin labeling the pitches as piano keys. Time is displayed with vertical measure and beat boundaries running left to right.

The Piano-roll view has two main panes (sections): note and velocity. When you first open a Piano-roll window (see page 43), the note pane will be full size and the velocity pane is hidden at the bottom. You can double-click on the gray border bar to "maximize" the velocity pane, or you can drag the gray border as high as you wish.

Working in the note pane

There are two modes, Select and Draw.

Select mode

Select mode lets you set the From and Thru markers by dragging the mouse. Click and drag to the right. The selected region appears in reverse video.

Draw mode

Draw mode lets you insert new notes, change existing notes, and audition (or "scrub") notes. The Snap-to button lets you pick a round-off amount for changing note start times and durations.

To change an existing note:

Which part of the note you click on -- left, middle, or right -- determines what you can change.

Starting time

Click on the *left* third of the note. A left-right cursor appears, and you can drag the note left or right to a new time without changing the pitch.

Pitch

Click on the *middle* third of the note. An up-down cursor appears, and you can drag the note up or down to a new pitch without changing the starting time. In this mode, the note will sound as you move to each new pitch step.

Duration

Click on the *right* third of the note. A left-right cursor appears, and you can drag left or right to change the length of the note without changing the starting time or pitch.

Inserting or copying a new note

Hold the CTRL key and click the left button. A note appears. As long as you hold down the mouse button, you may drag the note to the desired position.

If you CTRL+click on ....the new note will be
an existing note.....a copy of that existing note; drag the copy to desired location
empty space.....a copy of the last note that you dragged or deleted.

Tip: A copy will have the same MIDI channel, velocity, and other characteristics of the original note. So to insert a series of notes with these same characteristics, insert one, check these parameters using the RIGHT mouse button as described below, then proceed to CTRL+click to insert similar notes.

Deleting a note

Point to the note, hold down the left button, and press DELETE.

"Scrubbing" notes

If you click on an empty space in the note pane (anywhere a note does not exist) a vertical line appears. Continuing to hold the button, drag from side-to-side over notes and you will hear them. This can be handy to locate a bad note, to test how an entire chord sounds after changing the pitch of one of its notes, or to test notes after adjusting their velocities in the velocity pane (see below).

Changing hidden parameters

Click on a note using the RIGHT mouse button. A dialog box lets you edit all note parameters, including some that the Piano-roll view doesn't display.

Working in the velocity pane

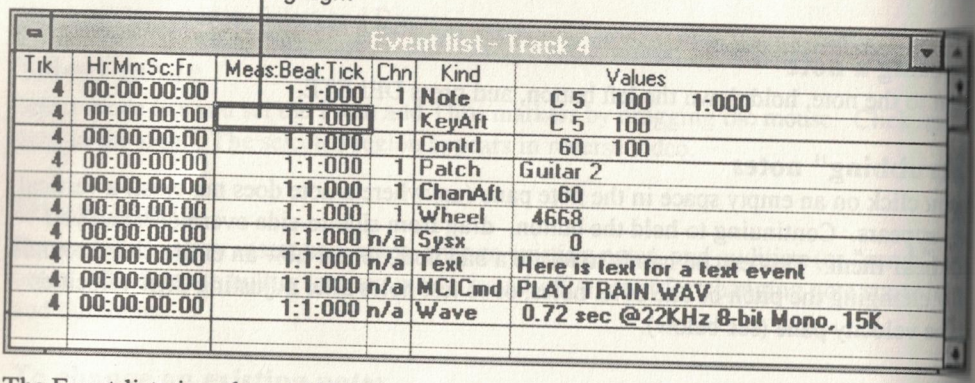
The velocity of each note is drawn below in the velocity pane, aligned with the starting time (left edge) of the note.

The velocity pane is always in Draw mode. Using the mouse, you can decrease or increase the velocity of a note by adjusting the height of its velocity mark.

Drag the mouse cursor anywhere above or below the velocity mark to increase or decrease its value. To create gradual increases or decreases of velocity, click and draw an upward or downward curve over a region. You can't erase velocity levels; simply redraw them with the mouse.

Note: Remember that velocity is not a separate type of event. Velocity is an attribute of a note event, just like pitch or duration. When you use the velocity pane, you are not adding or removing a new event, just modifying the velocity of the note events.

Event-list view



The Event-list view shows all kinds of events in a list format. You can insert, delete, or modify any kind of event, including notes, pitch wheel data, velocity, MIDI controllers, patch changes, wave files, text strings, MCI commands, and System Exclusive meta-events.

Events are listed one per line, from top to bottom. Events from different tracks are mixed together in chronological order. For example, if you select tracks 1 and 3 when you open the Event-list view (see page 43), you will see a single list of intermingled events from tracks 1 and 3. You can also have multiple Event-list views -- each containing any number of tracks -- open at the same time.

As you move the highlight through the Event-list, Cakewalk Apprentice updates the Now marker (time display). During playback, the Event-list scrolls to display the events at the current time.

Note: If the track is particularly dense, the Event-list may jump to keep up, but it will always be in the right neighborhood, and the highlight will be on the correct event when playback stops.

How events are notated

Each line of the Event-list view shows a single event. There are several kinds of MIDI events; each of which are discussed further in this chapter. Regardless of the kind of event, the Event-list displays four parameters that are common to all events:

- The *track* to which the event belongs.
- The *time* of the event. This is displayed in both SMPTE (Hours:Minutes:Seconds:Frames) and musical (Measures:Beats:Ticks) formats.
- The MIDI *channel* of the event. This is a value from 1 through 16. Synthesizers set to receive on this channel will play this event.

  Note: If you use the Channel parameter in the Track/Measure view to force a track to a MIDI channel, that will override the channel stored with the event and displayed in the Event-list.

- The *kind* of event. The remaining parameters vary for each kind of event:

Label	**Kind of event**	**Values parameters**
Note	MIDI note	pitch, velocity, duration
KeyAft	MIDI key after touch	pitch, pressure amount
Patch	MIDI patch ("program", "voice") change	patch number or name
Control	MIDI controller change	controller number, value
ChanAft	MIDI channel after touch	pressure amount
Wheel	MIDI pitch wheel position	wheel position
Sysx	System Exclusive data bank	sysx bank number
MCIcmd	Media Control Interface (MCI) command	MCI command text
Text	Text	Text
Wave	Digital audio wave	wave audio data

The following sections discuss the various kinds of events in more detail.

Note

There are three value parameters for note events:

- A *pitch*, which represents the MIDI key number as a note and octave.
- A *velocity* (0..127), which is how fast the key is pressed.
- A *duration*, which is how long the note lasts. This amount is shown in Beats:Ticks format. (If the note lasts less then one beat, then only the number of ticks is shown.)

Patch

There is one value parameter for a patch change event:

- The *number* or *name* of the patch.

Hint: See "Settings/Patch names" for more information on patch change numbers and names

Tip: You can insert patch change events at various points in a track by using the Event-list view. Often, however, a song needs only one patch for the entire track. In that case it is easier to use the track Patch parameter, which is a patch change Cakewalk Apprentice transmits every time you start playback. See the description of the Patch parameter in the "Track/Measure view" chapter.

Control

There are two value parameters for a MIDI controller change event:

- Controller *number* (0..127).
- Controller *value* (0..127).

Wheel

There is one value parameter for a pitch wheel event:

- Wheel *position* (-8192..8192, where the center is 0).

KeyAft

There are two value parameters for a key after touch event:

- A *pitch* representing the MIDI key number to which after touch is being applied.
- The *pressure amount* (0..127).

ChanAft

There is one value parameter for a channel after touch event:

- The *pressure amount* (0..127).

Sysx

This special event is not supported by Cakewalk Apprentice. It is provided only for file compatiblity with Cakewalk Professional for Windows, which supports MIDI System Exclusive.

MCIcmd

Media Control Interface (MCI) commands are special events that allow you to control other multimedia devices during playback of your sequence. MCI is part of the Multimedia Extensions in Windows 3.1. MCIcmd events have one parameter -- the text of the MCI command. For example,

PLAY C:\WINDOWS\CHIMES.WAV

would tell the MCI wave audio driver to load and play the CHIMES.WAV file included with Windows 3.1. (If there is no MCI wave audio driver installed, then this will not work.)

For more information about MCI commands, please refer to the *Multimedia Programmers' Reference*, published by Microsoft Press.

Wave

Wave events are digital audio data that you can embed into your work file. Playback of the digital audio is triggered at the time of the Wave event. The digital audio data is compatible with .WAV files and the Windows Clipboard format for wave data.

> This feature will work only if you've correctly installed a wave audio driver for your digital audio sound card, using the Windows Control Panel "Drivers" icon.

A wave event has one value parameter: the wave audio data itself. Information about the format and length of the data is displayed. The following is an example of how a Wave event whose data is the CHIMES.WAV file included with Windows 3.1.:

Wave 0.72 sec @22KHz 8-bit Mono, 15K

You cannot edit this data from within Cakewalk Apprentice. Instead, when you press ENTER on the Wave value field you get a dialog box. The choices let you move data to or from the wave event and the Clipboard or a .WAV file. For example, here's how you would edit the data using a Windows wave editing program that can copy and paste wave data to the Clipboard:

1. Copy the data to the Clipboard using the Wave event dialog box.
2. Switch to the wave editing program and use the Paste command.
3. Modify the data using the wave editing program, then use its Copy command.
4. Switch back to Cakewalk Apprentice and pick the Paste option from the Wave event dialog box.

Note: If the wave editing program does not support copying and pasting wave data using the Windows Clipboard, then you can use a temporary .WAV file for t transfer. For example, the Sound Recorder application included with Windo 3.1 cannot paste wave data, only copy it. You would need to save to a .WAV file and load that in Sound Recorder. Sound Recorder does support copying data to the Clipboard, however, so you could move the modified data back to Cakewalk Apprentice that way.

Note: In order to hear a wave file play back, you must have installed in your PC a sound card that is compatible with Windows 3.1 Multimedia Extensions (MME), and correctly installed the manufacturer's driver for that card using t Drivers icon in the Windows Control Panel.

Text

A Text event has one value parameter: the text itself. The text doesn't make any sound during playback: Text events are simply a way of inserting text in a track at specific tim Once you insert a Text event, move into the value field, and type your text. You can fit approximately 80 characters.

In some cases you may wish to mix Text events with other kinds of events in a track -- example, to insert comments at various points. In other cases, you may find it useful to have a track containing nothing but Text events: for example, lyrics. By opening an Event-list view showing only that track, you'll have a clean display of the lyrics. Just as with other kinds of events, the Event-list view will scroll during playback, with the highlight on the event whose time is less than or equal to the Now time. The highlight would serve as a "bouncing ball" prompter.

Text events are also handy to make a track last longer than it otherwise would: for example, if you want a track to Loop every 4 measures, but there are only 3 measures of events, you could put a Text event in the fourth measure. Now the track will have a fou measure of silence before looping back. In this case, the Text event is merely a "dummy event whose only purpose is to make the track last longer; it has no other effect on playback.

Note: For another way of associating text with times, see also the Markers view. Markers aren't part of any one track, and can be set to a "locked" SMPTE/MT time that won't change when the tempo changes. For indicating "hit points" f film scoring, or for marking sections of your song like "Bridge" and "Chorus", Markers are more appropriate than Text events.

How to move around the Event-list view

The following keys let you move around the Event-list view:

Press.....	To move
LEFT	Left one parameter
RIGHT.....	Right one parameter
UP.....	Up one line
DOWN.....	Down one line
PAGE UP.....	Up one screen
PAGE DOWN.....	Down one screen
HOME	To the first event
END.....	To the last event

In addition, all of the commands on Cakewalk Apprentice's GoTo menu will change your position in the Event-list view: the GoTo commands change the Now marker and the Event-list view updates to show the new time.

See the section on the GoTo Menu for a complete description of all GoTo commands and shortcut keys.

Changing event parameters

Changing events parameters works just like it does in the Track/Measure view.

Entering new values

With the keyboard: Use the arrow keys to move the highlight to the field. Type the new value and press ENTER.

With the mouse: Double-click on a field. Type the new value and press ENTER

Increasing/decreasing values

With the keyboard: Press + or - to add or subtract 1. Press the] or [keys to add or subtract 10.

With the mouse: Point to the value, click and hold the left button, and slide the mouse toward or away from you. The parameter value increases or decreases as

you slide the mouse. You may also press the right mouse button to make the values change by ten.

Note: Naturally, events are listed in order of their occurrence (representing the *sequence* of events). If you change an event's time, you will also change its location in the Event list. The Event-list view will follow that event to its new location.

Changing event kinds

Changing the event *Kind* field works a little differently than what was just described.

If you double-click or press ENTER on the event *Kind* field, a dialog box appears where you can choose among all kinds of events.

If you use the techniques to increase/decrease a field (PLUS and MINUS keys, or drag-changing with the mouse) you will cycle among the different kinds of MIDI events and the number of parameters following the event label changes accordingly. If you cycle though all the event kinds, you will return to the original event, along with its original parameters.

Note: *Special* (non-MIDI) event kinds (MCIcmd, Text, Wave, Sysx) do not cycle through the event Kind field. To change an existing event to or from one of these special events, you must use the method of double-clicking or pressing ENTER, and selecting from the dialog box. Why? When you change a MIDI event into another kind of MIDI event, Cakewalk Apprentice preserves the data and just shows it to you as another kind of event with the same underlying data. But the special kinds of events have an arbitrary amount of data associated with them, and Cakewalk Apprentice cannot preserve it. Rather than discarding the special data as soon as you press the PLUS or MINUS key, it makes sure you want to change the event by providing a dialog box.

Remember that the Event-list only displays *one event per line*. If several events occur at the same time, they are displayed one after another -- not piled up on top of each other. So, when you are cycling through the various event kinds, you are not revealing "hidden" events, nor are you adding new events. You are changing the selected event into a different kind of event, and viewing the same data values through a different "lens".

Inserting a new event

To insert a new event into the Event-list, move to the point in the list where you want the event to occur. Press the INSERT key. This creates a copy of the event you are currently on. You can then change the event kind and event parameters as described above.

Example: Insert a patch-change event in track 1.

1. Move the highlight to track 1 in the Track/Measure view, then open an Event-list view.
2. Press INSERT. This makes a copy of the current event. (If there is no existing event, a default Note event is created.)
3. Change the new event to be a Patch event.
   - With the keyboard: Move the highlight to the *Kind* column for the event. Use the PLUS key to cycle through the kinds of events until *Patch* appears. Or, press ENTER to pick *Patch* from the dialog box.
   - With the mouse: Click on the *Kind* column for the event. While holding the left mouse button, slide the mouse forward to cycle through the kinds of events until *Patch* appears. Or, double-click on the event *Kind* column and pick *Patch* from the dialog box.
4. Change the patch value.
   - With the keyboard: Move the highlight to the right, to the Patch event's value. Use the PLUS or MINUS keys to cycle through the various patches. Or, press ENTER to pick from a list of patches.
   - With the mouse: Click on the Patch event's value. While holding the left mouse button, slide the mouse toward you or away from you to cycle through the various patches. Or, double-click on the patch value to pick from a list of patches.

Deleting an event

Press the DELETE key to delete whatever event you are currently on.

Tip: To delete many events at once, use the "Edit/Cut" command.

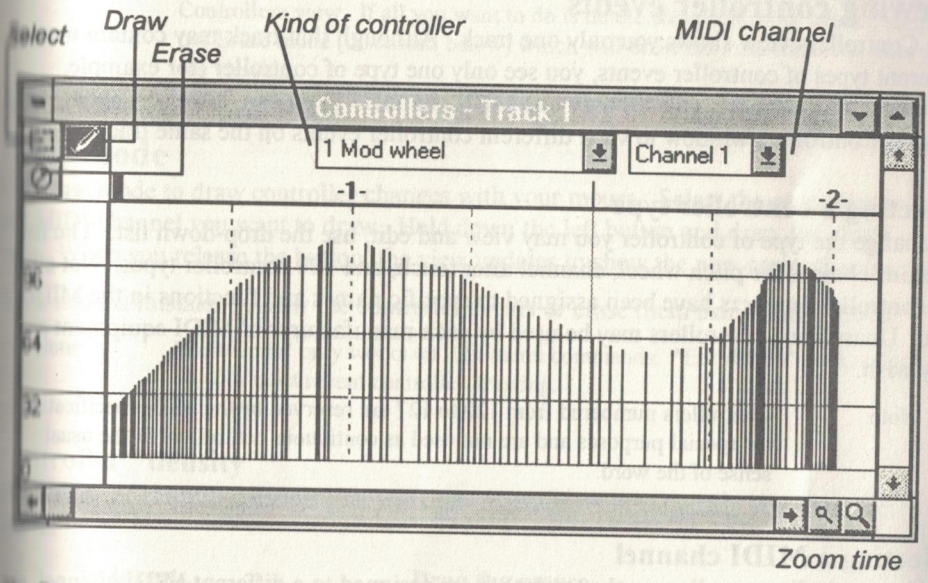
Step-playing events

The Event-list view lets you step-play events, one by one. This is a convenient way of auditioning a single event to confirm that it's what you want.

With the keyboard: Press and hold SHIFT+SPACEBAR to play the event you are currently on. If it is a Note or Wave event, the note or wave audio will be turned off when you release the SPACEBAR; hold it down to hear as much as you want. The highlight will automatically advance to the next event, so that you can step-play a series of events by repeatedly pressing SHIFT+SPACEBAR.

With the mouse: SHIFT+CLICK to play the event you are currently on. If it is a Note or Wave event, the note or wave audio will be turned off when you release the mouse button; hold it down to hear as much as you want.

Controllers view



The Controllers view is a graphical display of MIDI controller events for a track. MIDI controller events modify things like volume, pitch modulation, sustain pedal, and panning. The Controllers view also lets you work with pitch wheel and channel after touch events, which aren't really "MIDI Controller" events but are also suitable for editing as graphical shapes. You can edit any of these kinds of events using the Event-list view -- they will appear as Control, Wheel, and ChanAft events -- but generally it is easier to work with these events in the graphical format of the Controllers view.

Hint: See page 43 if you're unsure about how to open a track-editing view like the Controllers view.

How controller events are displayed

The horizontal axis represents time, and the vertical axis represents the controller value. Each controller event is drawn as a single vertical line, whose height represents the value.

Viewing controller events

The Controllers view shows you only one track. Although that track may contain many different types of controller events, you see only one type of controller (for example, Volume). Furthermore, you see only one MIDI channel. (You can, however, open another Controllers window to view different controller events on the same track.)

Selecting a controller type

To change the type of controller you may view and edit, use the drop-down list. The list contains choices for pitch wheel, channel after touch, and 120 controller types. Not all of the controller numbers have been assigned to specific names and functions in the MIDI spec. Unassigned controllers may be used by each manufacturer of MIDI equipment as they wish.

Note: Controllers numbered from 120 to 127 are reserved by the MIDI specification for special purposes and are not used as continuous controllers in the usual sense of the word.

Selecting a MIDI channel

To view and edit controllers in the track that are assigned to a different MIDI channel, use the drop-down list of MIDI channels. Remember that a track may contain events for more than one MIDI channel. Each event is stamped with a MIDI channel which may be different than the forced Channel parameter of the track.

Choosing edit modes

The Controllers view has three editing modes, which are activated by clicking on the appropriate button in the upper left-hand corner of the window.

Select mode

Select mode lets you set the From and Thru markers using the mouse. Click and drag to the right. The selected region appears in reverse video.

Tip: If you are selecting a region in preparation for using the "Edit/Cut" or "Edit/Copy" commands, you may want to use an Event Filter (page 122) with those commands to make sure you are copying or cutting only the visible controller events. The Event Filter should be set to include only (a) Control events with (b) the *min* and *max* controller number set to match the controller type you are viewing, and with (c) the *min* and *max* channel set to match the MIDI channel you are viewing. Otherwise, you may accidentally Cut or Copy other kinds of events -- for example, note events -- that are not visible in the Controllers view. If all you want to do is delete some controller events, simply use Erase mode (discussed below) which will erase only the controller data you are viewing.

Draw mode

Use Draw mode to draw controller changes with your mouse. Select the controller type and MIDI channel you want to draw. Hold down the left button and draw the shape you want. When you release the button, the view updates to show the new controller events.

If you make a mistake, redraw the controller events or erase them using Erase mode.

Note: "Edit/Undo" only works on Edit menu commands. "Edit/Undo" does not work on your most recent controller drawing.

Controller "density"

The density of controller events that you draw depends on how quickly you drag the mouse:

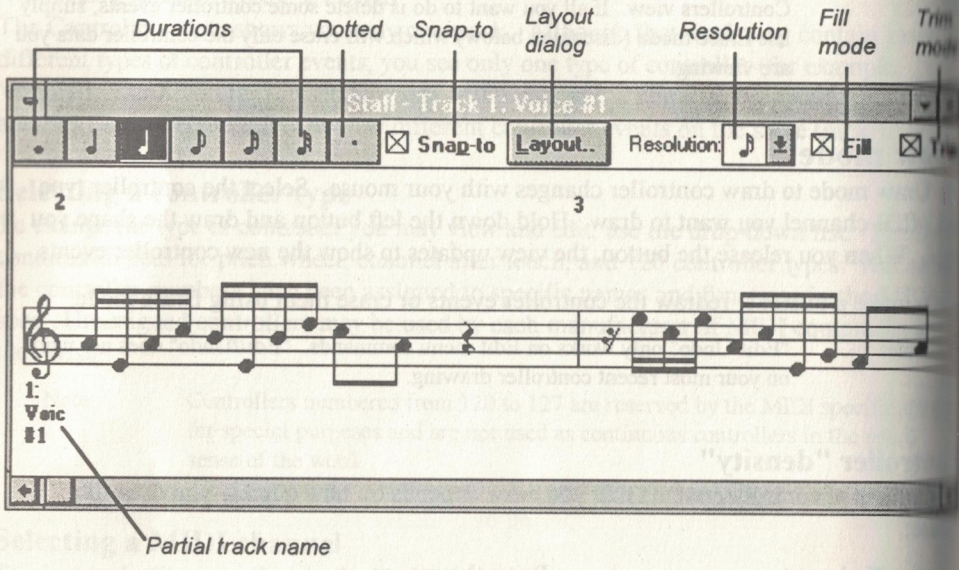
To insert..... Drag the mouse
more controller events..... slowly
fewer controller events ..... quickly

Creating a change that will sound smooth does not always require making the value change by one on each tick. Bigger jumps may sound very gradual if the tempo is fast. Also, many devices round off the controller values: for example, many instruments respond to Volume controller values of 100 and 101 with exactly the same loudness. Using an unnecessary density of controller events might actually "backfire" by making the computer work too hard during playback and not be able to keep up.

Erase mode

Use Erase mode to delete controller events. Click and drag over the desired region. As you drag, the region being erased appears in red. Those events will be deleted when you release the mouse button.

Staff view



The Staff view is a view of sequencer data as staff notation, with basic interactive editing capabilities.

Sequencers vs. Notation programs

Traditionally, there have been two distinct types of music software: sequencers and notation programs. Cakewalk Apprentice is a sequencer: it provides powerful tools that make it easy for you to record, edit, and play back music. Notation software, by contrast, is focused on printing music as notes on a staff -- it is really desktop publishing software with a special focus.

Cakewalk Apprentice is not intended as a replacement for full-featured music publishing software. For one thing, it does not print! And there are many nuances of notation that Cakewalk Apprentice does not even try to address. Instead, we have sought to satisfy the

requests of many users for the ability to view and edit their music as notes on a staff, not just in Piano-roll and Event-list formats.

Taking inexact human performances and notating them within staff notation's rigid rhythmic constraints is a challenging goal in itself. By working with your music in staff notation as you create it, you will have a better idea of how it's likely to come out when you export it (via a MIDI File, for example) to a full-featured music printing program.

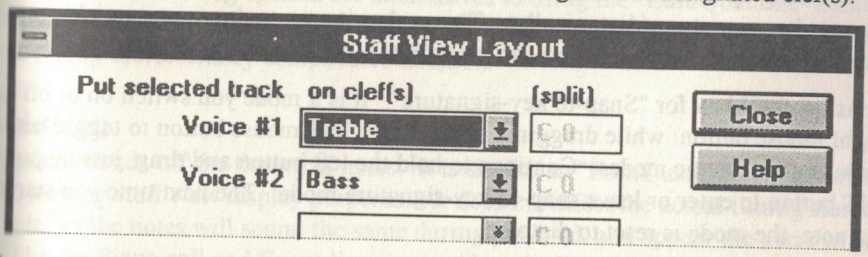
This is not to say that the Staff view will be an exact image of how any given music printing program will display notes; each program will have its own approach to loading MIDI Files and rounding off timing. But you can work with the "Edit/Quantize" command to create a MIDI File that will be easier for a notation program to read with predictable results.

Staff view layout

The Staff view can display up to 10 staves of standard notation. You can view up to 10 tracks in the staff view, provided that each track uses only one staff.

When you open the Staff window (see page 43), Cakewalk Apprentice picks a clef for each track -- bass or treble -- by looking at the range of pitches in the track. If a track has notes that fall in both clefs, or no notes at all, Cakewalk Apprentice splits the track onto two staves, treble and bass.

You can change how each track is displayed by pressing the **Layout** button. The Staff view layout dialog box appears, listing track names alongside the designated clef(s).



To change the clef for a track, click on the track's drop-down list and choose from Treble, Bass, and Treble/Bass.

If you assign a track to Treble/Bass, the track is split onto two staves. Use the split option to specify the split point: the lowest note that should go on the treble clef.

Note: If you assign a track with Treble/Bass, that track uses up two of the 10 available staves.

Editing noteheads

First, a general tip. The Staff view is very similar to the Piano-roll view in terms of what mouse buttons and keystrokes you use to accomplish certain tasks. For example, to copy and drag a note to a new position, you CTRL+click on the original note, then drag to the desired location.

Changing an existing note

Click on the note and drag it to the new position you want. You can drag to a new time (horizontally) and a new pitch (vertically).

Snap-to time

The Snap-to checkbox determines whether you will be guided to insert notes of certain durations at starting times that are multiples of that duration. For example, if you've selected the quarter-note button, and Snap-to is checked, your inserted notes will be forced to the nearest quarter-note boundary. This can be handy for entering many notes quickly, but of course you will need to turn this off to enter certain things: for instance, if you've selected the half-note duration and insert a note on the last beat of a measure. (In this example, the screen will be redrawn to show two quarter-notes, tied together. The underlying sequencer event is a single note extending over the measure boundary.)

"Snap-to key-signature"

When you drag up and down to a new pitch, the note normally "snaps" to the pitches in the current key signature (diatonically). This makes it easy to drag notes quickly among pitches that are in the key. But you can also drag in half-steps (chromatically).

There is no checkbox for "Snap-to key-signature". It is a mode you switch on or off using the right mouse button: while dragging, click the RIGHT mouse button to toggle between diatonic and chromatic modes. Continue to hold the left button and drag, just tapping the RIGHT button to enter or leave snap-to-key-signature mode. The next time you start to drag a note, the mode is reset to diatonic.

Inserting or copying a new note

Hold the CTRL key and click on a note. As long as you hold down the mouse button, you may drag the note to the desired position. If you point to an area where a note cannot be dropped, the cursor changes to a "cannot-drop" symbol; if you release the mouse button there, no change will be made. You can also press ESCAPE while dragging, to cancel.

If you CTRL+click on	the new note will be
an existing note	a copy of that existing note; drag the copy to desired location
empty space	a note of the same duration as selected with the duration buttons

The duration buttons in the top left of the Staff view let you pick among the basic notehead. You may also click the "dot" button to make a dotted version of any of these. A dotted note means its duration is extended by one half of its original value. For example, a dotted half-note is held for an extra quarter-note.)

Deleting a note

Point to the note, hold down the left button, and press DELETE.

Changing "hidden" note parameters

Click on a note using the RIGHT mouse button. A dialog box lets you edit all note parameters, including some that the Staff view doesn't display.

Simplifying options

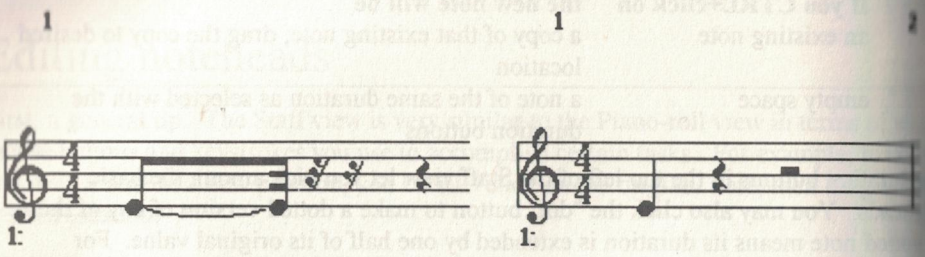
Several options help you display inexact human performances without making the notation too complex. You may not want to see very small note values (like 32nd notes), very small rests between notes, or separate "layers" (more than one rhythmic part on the same staff). The following options are alternatives to using the "Edit/Quantize" command to round-off the actual times and durations of the notes: you can preserve the human feel without seeing unnecessarily complicated notation.

Resolution

This option rounds-off the timing of notes. It is similar to "Edit/Quantize", but works on-the-fly, just for Staff view display purposes. It does not affect the actual timing stored for each note, so the notes will sound the same during playback and appear the same in other views like the Piano-roll and Event-list views. Also, the Resolution option uses a different approach to rounding-off the timing that is more appropriate for staff notation.

Fill

This option rounds up durations to the next beat, or the next note, whichever comes first. This helps because human performances aren't usually perfectly legato -- that is, there are gaps between notes -- but you wouldn't want to see this notated with excruciating precision.



With Fill disabled, this note's duration is drawn exactly, to the closest Resolution (in this example, Resolution is set to 32nd note).

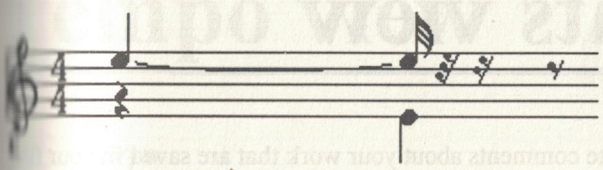
With Fill enabled, the same note is filled out to a quarter note, which is probably what you meant when played it.

However, if you are entering notes with the mouse, Fill may produce confusing results. With Fill enabled, an inserted eighth-note in 4/4 time will look like a quarter-note, at least until you insert another eighth note immediately following it. Turning off Fill will allow you to insert a note of any duration and see it drawn exactly as what you inserted. Fill is more appropriate for looking at live human recordings.

Trim

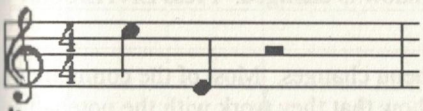
This cuts off durations if they extend only a little way past the start of the next note. Trim helps with roughly the opposite situation that Fill addresses: notes that overlap each other by a small amount. As with Fill, you may wish to turn off Trim if you're entering notes using the mouse, because otherwise you may not see the exact note value that you entered.

1



With Trim disabled, the top note is drawn exactly, a little longer than a quarter-note. This forces separate "layers" (parts) on the same staff and looks complicated.

1 2



1:

With Trim enabled, the top note is drawn as a quarter-note. There is no overlap, and no need to create separate layers. Again, this is probably what you meant when you were playing.

Comments view

The Comments view lets you write comments about your work that are saved in your file

Using the notepad

The Comments view uses the same editing keys as other standard Windows editing windows. Lines wrap when you reach the right edge of the window. So when typing paragraphs, do not press ENTER at the end of each line. That way, your text can be sized to fill the window properly if the size of the window is changed. Press ENTER only at the end of each paragraph.

When the Comments view is active, the Edit menu changes. Most of the commands are disabled, but Cut, Copy, and Paste change to show that they work with the notepad and the Windows Clipboard. You can use these commands to move text from the Comments view to other Windows applications.

The Comments window does not scroll during playback; it is simply a way to attach free-form text to your work file.

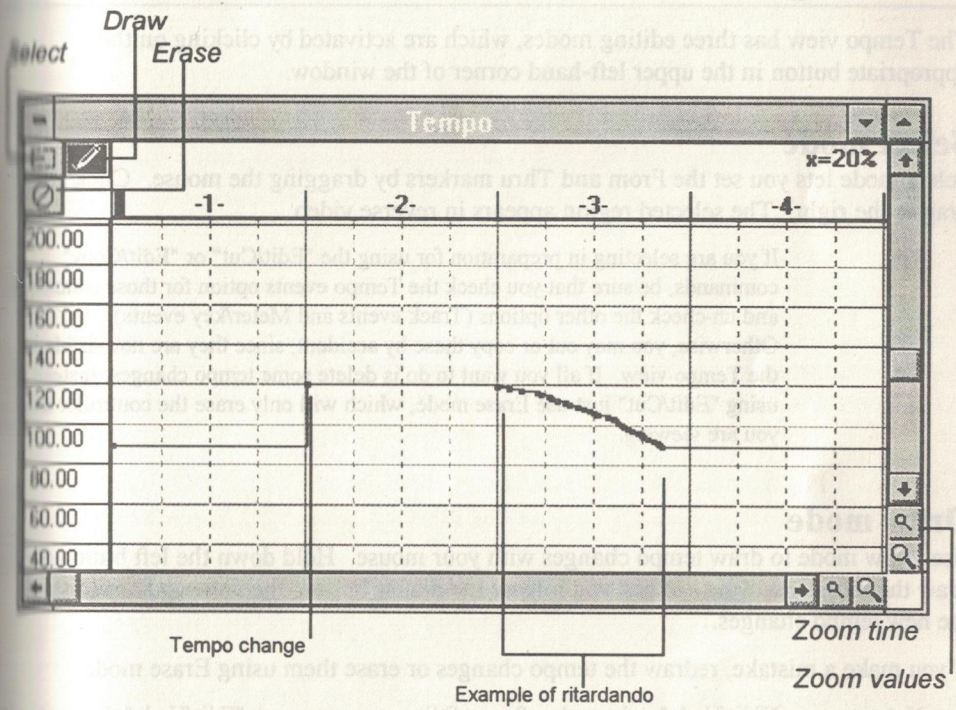
Note: For ways of associating text with times, see Text events in the Event-list view and markers in the Markers view.

Auto-display comments

You can make the Comments view open automatically when a file is loaded. Just type the @ character (the "at sign") as the very first character in the upper-left corner. Do not put a space or any other character before the @ in the notepad.

This is handy if you are sharing files with other people and you want to give them instructions. If the file includes MCIcmd events, you may want to mention what multimedia hardware is required. If you sell or distribute songs, you can ensure that your copyright notice is read.

Tempo view



The Tempo view provides a graphic display of any tempo changes in your work file. Here you can use your mouse to draw or plot your tempo changes onto a map.

How tempos are displayed

The tempo is displayed as a continuous line plotted along a graph. The horizontal axis represents time and the vertical axis represents the tempo in *beats per minute* (BPM). If the whole song has a single tempo, the tempo will be displayed as a straight line.

Both the horizontal and the vertical scroll bars in the Tempo view have zoom buttons (magnifying glass icons). Click on these buttons to zoom in and out while viewing your tempo changes; use the large magnifying glass to increase magnification (zoom in), and the small one to decrease (zoom out).

Choosing edit modes

The Tempo view has three editing modes, which are activated by clicking on the appropriate button in the upper left-hand corner of the window.

Select mode

Select mode lets you set the From and Thru markers by dragging the mouse. Click and drag to the right. The selected region appears in reverse video.

Tip: If you are selecting in preparation for using the "Edit/Cut" or "Edit/Copy" commands, be sure that you check the Tempo events option for those commands and un-check the other options (Track events and Meter/key events). Otherwise, you may cut or copy these by accident, since they are not visible in the Tempo view. If all you want to do is delete some tempo changes, instead of using "Edit/Cut" just use Erase mode, which will only erase the controller data you are viewing.

Draw mode

Use Draw mode to draw tempo changes with your mouse. Hold down the left button and draw the shape you want. When you release the mouse button, the view updates to show the new tempo changes.

If you make a mistake, redraw the tempo changes or erase them using Erase mode.

Note: "Edit/Undo" only works after an Edit menu command. "Edit/Undo" does not work on your most recent tempo "drawing."

"Density"

The density of tempo events that you draw depends on how quickly you drag the mouse:

To insert.....	**Drag the mouse**
more tempo events	slowly
fewer tempo events.....	quickly

Erase mode

Use Erase mode to delete tempo changes. Click and drag over the desired region. As you drag, the region being erased appears in red. When you release the mouse button, the tempo changes are deleted. The last tempo prior to the erased region will now be in effect.

Meter/Key view

The Meter/Key view allows you to enter meter and key changes on measure boundaries. You can have as many meter and key changes as you need. Meter and key changes are global, meaning they affect all tracks.

In the list of meter/key changes there is always one entry, for measure 1, because there must always be a meter and key signature for the song. The default meter is **4/4** and the key is **C**.

Adding and changing meter/key entries

To add an entry, click on **Add**. The Current meter/key dialog box prompts you for the location, the meter, and the key of the new entry. If adding a meter/key change to an existing list of entries, move the cursor to the desired point in the list, and click on Add. The dialog box will hold a copy of the selected entry.

To change an existing entry, simply select it and click on **Change**. The dialog box will display the settings for the selected entry. From there you can change its meter and/or key signature.

To change the measure location of an existing meter/key entry, first select it, and click on **Add**. The dialog box will contain the currently selected entry. Change the measure location. Now delete the original entry.

Deleting meter/key entries

You can delete more than one entry at a time. Drag the mouse over the entries you wish to select and click on **Delete**. If the Confirm option is enabled, Cakewalk Apprentice prompts you to confirm deletion of the selected meter/key entries. If you want to delete the actual measures along with the meter/key change, use the "Edit/Cut" command, and check Meter/key changes along with Events for your "Edit/Cut" options.

Note: Adding and deleting meter changes to and from an existing workfile affects all measures following that entry. Meter changes take a little planning. Please refer to the following section on ***Meter Changes***.

Meter changes

The meter -- also known as "time signature" -- describes how to divide time in rhythmic pulses. When you set meters, you are specifying the number of beats per measure, and the note value of each beat. Common meters include 2/4, 4/4, 3/4, and 6/8.

The top number of a meter is the number of beats per measure, and can be from 1 through 99. The bottom number of a meter is the value of each beat; you can pick from a list of values ranging from a whole note to a thirty-second note.

The meter affects several things in Cakewalk Apprentice.

1. The metronome's accents, if it is used.
2. How the Measures:Beats:Ticks times are calculated and displayed for you.
3. How the Staff view is drawn.

Note: While Cakewalk Apprentice in general allows meters to have up to 99 beats per measure, the Staff view cannot display such measures. You will receive an error message when trying to use the Staff view with meters exceeding its capacity.

Internally, Cakewalk Apprentice stores times as "raw" ticks. The timebase -- the number of ticks per quarter-note -- of Cakewalk Apprentice is 120 PPQ. If you are using a timebase of 120 PPQ, and the workfile is in 4/4 time, then a whole measure equals 480 ticks.

Tips for working with meter changes

Usually the easiest approach to working with meter changes is to set them all up before doing any recording. Use the Meter/Key window to add meter changes at the desired measures.

Adding a meter change to existing measures

If you add a meter change to a measure with existing material in it, the change will throw off that measure and all following measures. For instance, if a measure is in 4/4, and you change the meter to 3/4, notes originally on beat 4 become beat 1 of the following measure. Usually this is not what you want.

Let's say you have a song that is entirely in 4/4. You want to insert a blank bar of 3/4 at bar 5. But you want the original material in bar 5 to resume in measure 6 in 4/4 time again. And you want it aligned correctly!

First add a meter change of 3/4 at measure 5, and a meter change back to 4/4 at measure 6. Now, using drag-and-drop editing, slide the remaining measures over by 1.

You can also use the "Edit/Slide" command to slide everything from 5 to measure 6: Make the From value 5:1:0 and the Thru value the end of your piece. Specify sliding back by 1 measure. This will shift over the original material to begin correctly in 4/4 at measure 6, and measure 5, in 3/4, will be blank.

Deleting "different" meter changes

Cakewalk Apprentice's "Edit/Cut", "Edit/Copy", and "Edit/Paste" commands allow you to cut meter/key signature changes, tempo changes, MIDI events, or any combination of these three items.

To delete measures of a different meter "sandwiched" between two identical meters, select those measures in the Measure window, and use "Edit/Cut". Check the options to cut events and measure/key changes, and check the Delete hole option.

Key signatures

Like meter changes, key signature changes must occur on measure boundaries.

Frequently you will only use one key signature for an entire workfile. By default a workfile is in the key of C.

The key signature affects several things in Cakewalk Apprentice:

1. The key signature controls how Cakewalk displays notes. In the Event view and some dialog boxes, Cakewalk converts the MIDI pitch number to labels like "C#2" (C-sharp in the second octave).
2. The Staff view uses the key signature to display notation correctly.

> Changing the key signature only changes how Cakewalk Apprentice *displays* pitches for you. It does not change the raw MIDI key number (pitch) stored with each note. To actually transpose pitches, use the "Edit/Transpose" command or edit notes individually using the Piano-roll, Event-list, or Staff views.

Markers view

Markers are a way of associating text with a time. You can use markers to name sections of your work, to mark "hit points" for film scoring, and for shortcuts wherever you need to enter a time in Cakewalk Apprentice. The Markers view is a list of your markers, and like other views, updates during playback to show the Now time.

Note: If you need to have scrolling text, but don't need to use the text for time markers, you can insert Text events into the Event-list view. If you want to store large amounts of text with your song file, but don't need markers or a scrolling list, then use the Comments window or Text events.

Time formats for markers

A marker can have a musical time (Measures:Beats:Ticks). Or, it can have a locked SMPTE time (Hours:Minutes:Seconds:Frames), so that if the tempo changes, the marker will refer to the same SMPTE time. (Normally, when the tempo changes, the SMPTE time changes to reflect the new SMPTE equivalent of the musical time.) Locked times are useful for indicating "hit points" when creating music or sound effects for visual media like film scores and multimedia presentations.

Using markers to move around

Anyplace that you enter a time in a Cakewalk Apprentice dialog box, you may call up the list of marker names by pressing F5. Select a name from the list and press ENTER. The dialog box field will contain the marker time.

For example, if you choose the "GoTo/Time" command, the dialog box has a field for the time to go to. Instead of typing a time like "1:1:0", you may press F5 and a list of marker names appears. Select a name and press ENTER. Back in the "GoTo/Time" dialog box, the field now contains the time of marker you picked, typed in for you automatically.

Adding, changing, and deleting markers

The Markers view is a list of markers (in chronological order) with some buttons for modifying the list.

Add

Press the **Add** button and complete the dialog box.

If you want the marker to refer to a locked SMPTE time, check that item and enter SMPTE time. Otherwise enter a musical time. Cakewalk Apprentice will propose for the marker time whatever the Now time is. (If you've been moving through the markers list, the Now marker will be set to the current marker. If you've been navigating through some other Cakewalk Apprentice view, then the Now marker will reflect that.)

Note: You may have more than one marker for the same time. In other words, it is okay to create more than one name for the same time.

Change

Select the marker and press **Change**. In the dialog box you can change the time, the lock option, and the text. If you change the time, the marker automatically moves to its new position in the list.

Delete

Select the marker and press **Delete**. Deleted markers cannot be undone with "Edit/Undo"

File Menu

The File menu commands are related to file loading and saving or to program execution control. The Open and Save commands let you load and save work to and from disk files (either floppy or hard drive). The "File/Extract" and "File/Merge" commands let you save and load a portion of a work. The New command lets you start with a clean slate.

File / New

Purpose: Clear the current workfile and begin a new one.

If you have made changes to your work that have not been saved to disk, you will be asked if you would like to save your work.

Press.....	**To**
Yes.....	Save the file and proceed.
No.....	Not save the file and proceed.
Cancel.....	Cancel the command.

If you choose Yes to proceed, the work in memory will be completely erased and default parameters reset.

Using a default workfile: "$DEFAULT.WRK"

Picking "File/New" resets a number of Cakewalk Apprentice parameters to defaults. For example, the tempo is always reset to 100 and the meter to 4/4. If you don't like these defaults, you can create a special workfile in which you've saved the settings you prefer.

"File/New" looks for a workfile named $DEFAULT.WRK and loads it if found. You can create and use $DEFAULT.WRK as a file template. Whatever settings are saved in $DEFAULT.WRK will be loaded for you automatically when you pick "File/New."

When "File/New" loads $DEFAULT.WRK in this automatic way, it doesn't set the current file name to $DEFAULT.WRK. Instead it is left blank: "(untitled)". This is on purpose, so that you don't accidentally save over your configuration file. To modify $DEFAULT.WRK, load it as a normal file by using "File/Load", make your changes, then save it.

Note: Cakewalk Apprentice also looks for and loads $DEFAULT.WRK on startup, not just when you pick "File/New."

To create $DEFAULT.WRK for the first time, choose "File/New" so that you have a clean slate. Then make whatever settings you wish. For example, set the tempo to 120 and the meter to 3/4. Now pick "File/Save" and enter the name "$DEFAULT" (the ".WRK" is added automatically).

To test it, load another workfile (to change the settings) then pick "File/New" again. Your $DEFAULT.WRK settings should all be there.

Tip: Be sure to put the "$" in the name. Plain "DEFAULT.WRK" won't be treated this special way. You have to use the exact name "$DEFAULT.WRK".

Tip: Typically you won't have any events or tracks in $DEFAULT.WRK. But you can if you wish; they'll be loaded when you pick "File/New".

Idea: You can set up a track for each of your MIDI channels. For instance, track 1 could be channel 1, track 2 could be channel 2, and so on. This lets you use the "Settings/MIDI Thru" Auto mapping mode more quickly by providing you with ready-set track parameters. See page 112 for more information about MIDI Thru.

Note: Cakewalk Apprentice always looks for $DEFAULT.WRK in the place it looks for other workfiles. See the Appendix about WCWLITE.INI for more information.

File / Open

Purpose: Load a work from a Cakewalk format file or a Standard MIDI File.

Shortcut key: CTRL + O.

If you have made changes to your work that have not been saved to disk, you will be asked if you would like to save your work.

Press.....	To
Y.....	Save the file and proceed.
N.....	Not save the file and proceed.
Escape.....	Cancel the command.

File / Save

Purpose: Save a work to the disk file it was loaded from.

Shortcut key: CTRL + S

This command saves your work to the disk file it was loaded from, without prompting you for the name.

If the work was not loaded from a disk file, however, then this command has to ask you for a filename, like the following command....

File / Save As

Purpose: Save a work to a disk file, giving you a chance to specify a particular name and type.

If the work was originally loaded from a disk file, the name and type of that file is displayed as the default. You can simply press OK to accept the default name and type.

A filename extension is automatically added:

This file type.....	**Has this extension**
Cakewalk workfile	.WRK
Standard MIDI File.....	.MID or .MFF

Tip: Always save your work as a Cakewalk workfile unless you need to use your song with another program that requires MIDI Files. Some Cakewalk information can't be stored in MIDI Files and will be lost when you save in that format. See page 120 for more information about MIDI Files.

Warning: If a file with the same name already exists, you are asked if you wish to replace it. If you answer "Yes," the existing file will be destroyed and replaced by your new material.

File / Extract

Purpose: Extract part of the current work and save it to a disk file.

This command saves the contents of the Scrap buffer to a workfile along with settings like tempo, time signature, etc. In essence, this command works exactly like the "File/Save" command, except the Scrap buffer is saved to a file, rather than the Main buffer.

Hint: For information on how to get material into the Scrap buffer, see the Command Reference sections on "Edit/Cut" and "Edit/Copy".

File / Merge

Purpose: Load notes from a Cakewalk workfile into the Scrap buffer -- from where they can be Pasted into the work currently in memory.

This command loads the notes from a work file into the Scrap buffer. Only MIDI events are loaded, not settings like tempo, meter, and so forth. Because the events are loaded into the Scrap buffer, you can use the "Edit/Paste" command to place them where you want.

Typically you would use this to merge another work into the current work. Or, you could use it in conjunction with the "File/Extract" command (discussed above) to move material from part of one work into another.

Note: The Merge command does not know how to convert Cakewalk for DOS Release 1.x files. Use "File/Load" and "File/Save" to convert such a file before trying to use the Merge command with it.

File / Exit

Purpose: Exit the program.

Shortcut key: ALT+F4

If you have made changes to your work that have not been saved to disk, you will be asked if you would like to save your work.

Press.....	**To**
Yes.....	Save the file and exit Cakewalk Apprentice.
No.....	Not save the file and exit Cakewalk Apprentice.
Cancel.....	Cancel "File/Exit" and continue using Cakewalk Apprentice.

Realtime Menu

Commands on the Realtime menu deal with recording and playing your work.

Realtime / Play

Purpose: Turns playback mode on and off.

Shortcut key: SPACEBAR; Play button on Control bar.

This command starts and stops playback from the current position (Now marker time).

Realtime / Record

Purpose: Record MIDI data in real time.

Markers: Now; exactly one selected track.

Shortcut keys: R; Record button on Control bar; SPACEBAR also turns record off.

This command turns recording on and off.

Recording starts at the current position. By default, there is a one measure *count-in*, during which the metronome counts off before recording actually starts. You can change the count-in and other metronome options using the "Settings/Metronome" command.

When you stop recording, any MIDI data received is sitting in a temporary buffer. You will be asked if you want to keep the take.

Press..... To
Y..... Insert the material into the track.
N..... Throw the material away.

Note: If you stop recording and do *not* get asked whether you want to keep the take, that means Cakewalk Professional did not receive any MIDI data. Double-check your cable connections and master keyboard (or other controller) settings.

The new material is blended with the old, existing material.

Realtime / Rewind

Purpose: takes you to the beginning (1:1:0). Rewind works during playback or recording, so you don't need to stop before you rewind.

Markers: Now.

Shortcut key: Rewind button on Control bar.

Realtime / Step record

Purpose: Record music a rhythmic step at a time, using timing values that you set for each step.

Markers: Now; exactly one selected track.

Shortcut key: SHIFT+F3. Step-record button on Control bar.

What is Step-Recording?

Step-recording is a way of recording that lets you not worry about your timing. You set step sizes, like a quarter-note. Then you simply record one step at a time. In our example, each step is a new quarter-note.

In most step-recorders, you need to hit a key (on the computer keyboard) to tell them to advance to the next step. Cakewalk Apprentice's step-recorder has an auto-advance option: it automatically advances when you lift up all the MIDI keyboard keys you have pressed. So, you can easily step-record chords.

Cakewalk Apprentice lets you set a note duration time independently of the step size. The duration can be much shorter than the step size (resulting in staccato notes) or much bigger than the step size (resulting in overlapping, arpeggiated notes).

Using Cakewalk Apprentice Step-Recording

When you choose "Realtime/Step-record", a dialog box pops up. You are in step-record "mode." Step-recording works as long as this dialog box is on the screen.

While in step-recording, you go through the following cycle:

1. Set a step-size and/or duration.

2. Record a step by pressing some (MIDI keyboard) keys.
3. If you have **Auto-advance** enabled (the default), the step-recorder automatically advances to the next step when you release all the keys. Otherwise, you need to press **Advance** to manually advance to the next step after releasing the MIDI keyboard keys.
4. Go back to step 1 if you want to change the step-size and/or duration,
   or
   Go back to step 2 and keep recording more notes with the same step-size and duration,
   or
   Go on to...
5. Press **Keep** (or ENTER) to save your step-recorded music into the track
   or
   Press **Discard** (or ESCAPE) to throw away the step-recorded music.

Step size

The step size is how far apart each step will be. Pick one of the predefined values or press the **Other...** button to enter a specific number of ticks.

Duration

The duration is how long the note events will be. Pick one of the predefined values or press the **Other...** button to enter a specific number of ticks. Often you will want the duration to be the same as the step size: so, the default duration is "Follow step size."

Auto-advance

When you press keys on the MIDI keyboard, those notes are recorded. With **Auto-advance** enabled, you are automatically advanced to the next step as soon as you release all the keys. For instance, if you press the three keys that make up a C major chord, as soon as you release all three keys you are automatically advanced to the next step.

Dotted

When this item is checked, timing values are treated as dotted (worth half again as much). For instance, if you've selected a step size of a quarter-note and checked this item, the steps will be dotted quarter-notes.

Note: When you select another step size, the Dotted option is automatically unchecked for you. Why? To save you a keystroke: dotted notes are almost always followed by non-dotted notes.

Note: The Dotted option applies to both the step size and the duration.

Delete

You can delete a step using the **Delete** button. This clears the current step of all events - handy in case you made a mistake.

If you have **Auto-advance** enabled (which is the default), this also backs up a step so you can re-record the step. If you don't have auto-advance enabled, this doesn't back up; it assumes you haven't yet manually advanced to the next step.

Pattern

The **Pattern** option lets you more easily record a repeating rhythmic pattern with rests in it. There are 64 steps available per pattern.

For example, the pattern "12.4" will automatically skip over every third beat for you. You don't have to press **Advance** to skip the beat. Type SPACEBAR, R, a space or "."where you want a rest, and any other key where you want notes. When you are done making changes, click on another item in the dialog box to finalize your changes to the pattern.

Moving through time

You can skip a step by not playing any notes and pressing **Advance**.

You may also use the scrollbar, which is like the one found on the Control Bar. Click on the arrow buttons to advance or rewind in step-size increments. Drag the scrollbar button to advance by measure increments.

Wrapping up

When you are done with your recording, press **Keep** to keep everything you've done. If you want to throw away the step-recorded material, press **Discard**.

Mark Menu

The Mark Menu commands let you assign various values to the From and Thru markers.

Remember that Cakewalk Apprentice's editing commands (found on the Edit menu) operate on whatever tracks you have selected, in the time region From..Thru. The Mark menu commands let you set up a region for the editing commands. As you become more familiar with Cakewalk Apprentice, you will use most of these commands with shortcut keystrokes rather than picking them from the menu.

The Measure pane of the Track/Measure view is especially handy for setting up editing regions. You can easily see what is going on where in many tracks at once. Move the cursor around and use the F9 and F10 keys to mark the beginning and ending points of an editing region. (F9 sets the From marker to the current point; F10 does the same for the Thru marker).

Mark / From value

Purpose: Type in a specific value for the From marker.

Type the time in Measure:Beat:Tick format. Or, just like any other place where you need to enter a time, press F5 to insert the time of a marker (as defined in the Markers view).

You must separate each of the values using a space or the colon character. The beat and tick values are optional; if you leave them out, Cakewalk Apprentice assumes you mean beat 1 and tick 0.

Mark / Thru value

Purpose: Enter a precise value for the Thru marker.

Type the time in Measure:Beat:Tick format. Or, just like any other place where you need to enter a time, press F5 to insert the time of a marker (as defined in the Markers view).

You must separate each of the values using a space or the colon character. The beat and tick values are optional; if you leave them out, Cakewalk Apprentice assumes you mean beat 1 and tick 0.

Mark / From = now

Purpose: Set the From marker to the value of the Now marker.

Shortcut key: F9.

When you tap the F9 shortcut key, the From marker will instantly be set to the current position. This works during playback, so it can be a way of marking spots by ear.

Tip: For marking spots during playback, you can use the three tempo offsets to set up slow, normal, and fast speeds. Use the fast tempo to zoom in to the section where you want to cut, slow down to the normal tempo as you approach the point you want to mark, then use the slowest tempo to make the mark precisely.

Mark / Thru = now

Purpose: Set the Thru marker to the value of the Now marker.

Shortcut key: F10.

When you tap the F10 shortcut key, the Thru marker will instantly be set to the current position. This works during playback, so it can be a way of marking spots by ear.

Mark / From = start

Purpose: Set the From marker to the beginning of the work (1:1:0).

Shortcut key: CTRL+F9.

Tip: When you want to make an editing command work on the entire length of a track, tapping the shortcut keys Ctrl-F9 and Ctrl-F10 first will do the trick.

Mark / Thru = end

Purpose: Set the Thru marker to the end of the work (the time of the latest event).

Shortcut key: CTRL+F10.

Mark / Select All

Purpose: Select all tracks, from measure 1 to the end of your work (the time of the latest event).

Shortcut key: CTRL + NumPad 5.

Mark / Un-select all

Purpose: de-select all selected tracks and measures.

Shortcut key: NumPad 5.

GoTo Menu

The GoTo menu commands let you move to different times. As you become more familiar with Cakewalk Apprentice, you will use most of these commands with shortcut keystrokes rather than picking them from the menu.

GoTo / Time

Purpose: Go to a time that you type in.

Shortcut key: F5.

The Now marker is set to the time that you specify. Type the time in Measure:Beat:Tick format. Or, just like any other place where you need to enter a time, press F5 to insert the time of a marker (as defined in the Markers view).

Tip: When entering times, you do not have to supply a beat or ticks value -- they are optional. You can just enter the measure. If you omit the beat, Cakewalk Apprentice will assume beat 1. If you omit the ticks, it will assume 0 ticks. Example: if you enter "1" or "1:1", Cakewalk Apprentice will assume "1:1:0".

You can type a space instead of the colon (:) to separate the numbers.

GoTo / From

Purpose: Go to the point in time specified by the From marker.

Shortcut key: F7.

The Now marker is set to the value of the From marker. Handy for returning to the beginning of a marked region to play through it for confirmation before editing it.

GoTo / Thru

Purpose: Go to the point in time specified by the Thru marker.

Shortcut key: F8.

The Now marker is set to the value of the Thru marker.

GoTo / Beginning

Purpose: Return to the beginning of the piece.

Shortcut key: Ctrl-Home.

The Now marker is set to 1:1:0 (the beginning).

GoTo / End

Purpose: Go to the end of the work.

Shortcut key: CTRL+END.

The Now marker is set to the time of the latest event from all tracks (the end).

GoTo / Previous measure

Purpose: Back up to the beginning of the current or previous measure.

Shortcut key: CTRL+PAGEUP.

If the current position is within a measure, you are taken to the start of the current measure.

If you are already at the start of the current measure, you are taken to the start of the previous measure.

GoTo / Next measure

Purpose: Go forward to the beginning of the next measure.

Shortcut key: CTRL+PAGEDOWN.

If the current position is within a measure, you are taken to the first tick of the next measure.

If you are already at the first tick of a measure, you are taken to the first tick of the next measure.

GoTo / Search

Purpose: Find and go to an event meeting certain criteria.

Markers: Now; Selected track(s).

Searches for an event passing an Event Filter. You define your search criteria by using the Event Filter that pops up after you choose the command. Then, you are taken to the next event at or after your current position that meets that criteria.

Note: If there are other events at the exact same time as the event that is found, the cursor will be positioned on the first of the events at that time.

Remember that you can use octave wildcards in the Event Filter to, for instance, search for an A-flat in any octave:

Ab?

would be the minimum value of the pitch range, and the maximum value is ignored.

Hint: Event Filters are described starting on page 122.

GoTo / Search again

Purpose: Repeat a Search.

Markers: Now; Selected track(s).

Shortcut key: Alt-F5.

Uses the criteria from the last Search to locate the next event meeting the criteria.

Edit Menu

The Edit commands let you manipulate selected regions of your work. Most of these commands operate on selected tracks, within the time frame indicated by the From and Thru markers.

A Quick Overview of Global Editing

Few sequencers have as much global editing power as Cakewalk Apprentice. In particular, Cakewalk Apprentice provides excellent basic editing commands which you may combine in various ways. This overview should give you an idea of Cakewalk Apprentice's editing capability.

Multiple tracks at once (selecting tracks)...

One basic concept you should understand is that nearly all the editing commands can work on many tracks at once. In general, the commands work on whatever tracks are selected.

So, if you want to Quantize a whole bunch of tracks, you can select all those tracks and do it in one fell swoop, rather than issuing a separate command for each track.

If you just need to edit a single track, remember that whatever track the cursor is on -- in the Track/Measure view -- is automatically selected.

Hint: See "Selecting Tracks", page 34, for more information.

...Within a certain time region (using the From and Thru markers)

Whatever tracks you have selected, there is still the question of how much of the track the command should work on. Should it be the whole track, or just a couple measures?

You tell Cakewalk Apprentice what region to edit by using the From and Thru markers. For example, if you set From to 1:1:0 and Thru to 3:1:0, then the command will operate on the first two measures. If you were using the Cut command, then it would cut only those two measures.

Commands that need you to enter a "From" and a "Thru" time in the dialog box automatically load the values of the From and Thru markers. So, if you want to issue a series of commands on the same region, set the From and Thru markers to the beginning and end of that region. For more on this, see "Mark/From" and "Mark/Thru".

The F9 and F10 keys set the From and Thru markers to the current time. You can think of these as "block begin" and "block end" keys, if you wish.

Press.....	To set
F9	From equal to Now.
CTRL+F9.....	From to the beginning (1:1:0).
F10	Thru equal to Now.
CTRL+F10.....	Thru to the end (the time of the last event in all tracks)

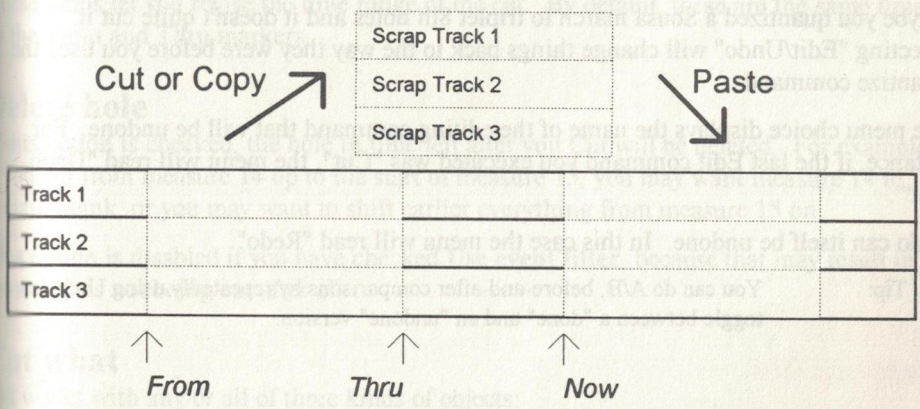
This is especially easy to do from the Track/Measure view, which provides a view of many measures of your work at once. Better yet, when you drag the mouse to select the From..Thru region, the Thru marker is automatically rounded off to the end of the measure.

Also, keep in mind that the F9 and F10 keys work during playback. So, you can mark regions by ear. This can be a little imprecise, but it's available if you want it.

Copying and moving: multi-track scrap buffer

Like many word processors, Cakewalk Apprentice has a scrap buffer and a trio of commands -- Cut, Copy and Paste -- that use it.

The Copy command places a copy of some region into the scrap buffer. The Cut command actually moves some region into the scrap buffer. And the Paste command lets you insert the contents of the scrap buffer back into your work at some point, with optional repetitions.



Cakewalk Apprentice has a "multi-track scrap." In other words, you can Cut, Copy, and Paste many tracks in parallel. If you want to Copy tracks 1, 2, and 3 and Paste them elsewhere, you can do this with all three tracks at once. Material is automatically pasted back into the track from which it came. You can override this and paste the scrap into any single track using the "Paste to One track" command.

Event Filters work with almost every command

Nearly every editing command has an option in its dialog box to use an Event Filter. Event Filters let you say that the command should operate only on certain events within a region.

So, you can be very selective, whether you are Copying, Cutting, Transposing, Quantizing, or whatever. For instance, you can Cut only patch change events by using Cut with an Event Filter that includes only patch change events.

However, if you don't need to be picky, you don't need to use an Event Filter.

Hint: For help with Event Filters, see page 122.

Edit / Undo

Purpose: Undo the effects of the last command from the Edit menu.

Shortcut key: CTRL+Z.

Someday everyone will be perfect. Until that day, Cakewalk Apprentice has the Undo command.

Often you will try out an editing command and find the result is not what you want. Maybe you quantized a Sousa march to triplet 8th notes and it doesn't quite cut it. Selecting "Edit/Undo" will change things back to the way they were before you used the Quantize command.

The menu choice displays the name of the editing command that will be undone. For instance, if the last Edit command you executed was "Cut", the menu will read "Undo 'Cut'".

Undo can itself be undone. In this case the menu will read "Redo".

Tip: You can do A/B, before-and-after comparisons by repeatedly using Undo to toggle between a "done" and an "undone" version.

Note: Undo does not work with the Copy command. There is nothing really for it to undo, because the only thing the Copy command changes is the Scrap buffer -- not the work itself.

Note: If there is not much memory left, Undo may not be able to store a copy of the pre-command version of things. In this case, you will be advised that the operation is too big to undo later, and asked if you want to go ahead anyway. If you do want to go ahead, the operation cannot be undone, so think twice! Perhaps you will want to save your work to disk first.

Edit / Cut

Purpose: Delete a region of the work and move it to the Scrap buffer.

Markers: Selected track(s), From and Thru.

Shortcut key: CTRL+X.

This command lets you cut out a region of the work. The cut-out material is put into the Scrap buffer. Later, you can Paste the material somewhere else, or just forget about it if all you wanted to do was delete it (it will be destroyed the next time something else is put in the Scrap buffer).

What exactly is cut out? All events from all selected tracks in the time range From..Thru. If you want to cut only certain events from a region, such as a range of notes or specific controller events, check the "Use event filter.." option in the Cut dialog box.

From and Thru

These items let you revise the time range of the cut. By default, these are the same times as the From and Thru markers.

Delete hole

If this option is checked, the hole in time left after you Cut will be deleted. For example, if you cut from measure 14 up to the start of measure 15, you may want measure 14 to remain blank, or you may want to shift earlier everything from measure 15 on.

This option is disabled if you have checked **Use event filter**, because that may result in some events not being cut after all.

Cut what

Cut works with any or all of three kinds of objects:

- **Track events.** Events from selected tracks in the From..Thru range will be copied. If this option is checked, you may also check Use event filter.. to refine the selection even further.

  Hint: Event Filters are described on page 122.

- **Tempo changes.**

- **Meter/key changes.** If this option is disabled (grey), then you've specified From and Thru times that are not a whole measure. Meter/key signature changes can only occur on measure boundaries. From must be set to the first tick of a measure (for example 10:1:0) and Thru must be set to the last tick of a measure (for example, 10:4:119, assuming 4/4 time and since there are 120 ticks per quarter-note.

  Tip: Dragging to select From and Thru in the Track/Measure view automatically sets From and Thru to be suitable for cutting or copying meter/key signature changes.

Edit / Copy

Purpose: Copy a region of the work to the Scrap buffer, leaving the original intact.

Markers: Selected track(s), From marker, Thru marker.

Shortcut key: CTRL+C.

This command works much like the Cut command, except that the region you mark is not deleted: rather, a copy of it is placed into the Scrap buffer.

Because nothing is cut out, there will be no hole afterwards, and so there are no options regarding holes.

Like the Cut command, Copy will destroy the current contents of the Scrap buffer, replacing it with the new material you are copying there.

Edit / Paste

Purpose: Insert the contents of the Scrap buffer into your work.

Markers: Now, selected track(s).

Shortcut key: CTRL+V.

Events are pasted back to the tracks they were originally cut or copied from. In other words, if you cut events from tracks 1, 5, and 7, events cut from track 1 will be pasted back to track 1, events cut from track 5 will be pasted back to track 5, and events cut from track 7 will be pasted back to track 7. This lets you cut out many tracks at once and move them some place else.

If there is enough memory, the Scrap buffer will not be destroyed. So, you can Paste the same material somewhere else again.

Note: If you want to paste material to different tracks, use the "Edit/Paste to One track" command.

Starting at time

This item lets you revise the insertion point. By default, the value of the Now marker will be here. This makes it easy to move to the point where you want to start pasting before you call up the command.

Repetitions

This item lets you repeat the material any number of times.

Hole kind: merging, replacing, or making a hole

This item specifies how the material will be placed into the piece. There are three options:

- **Blend old and new material** merges what you're pasting with what's already in the track.
- **Replace old material with new** first deletes what's in the track, then pastes the new material.
- **Slide over existing material to make room** first shifts over existing material to make room, then pastes the new material.

Paste what

Paste works with any or all of three kinds of objects that you have Cut or Copied:

- **Track events.** If this option is disabled, then there are no track events in the Scrap.
- **Tempo changes.** If this option is disabled then there are no track events in the Scrap.
- **Meter/key changes.** If this option is disabled, then either there are no track events in the Scrap, or you have not specified a Starting time that is on a measure boundary. Meter/key signature changes can only occur on measure boundaries.

Tip: Setting the current position (Now marker) in the Track/measure view automatically rounds it off to a measure boundary.

Edit / Paste to one track

Purpose: Insert the contents of the Scrap buffer into one track of the Main buffer starting at the current position.

Markers: Now, exactly one selected track.

Shortcut key: CTRL+SHIFT+V.

This command works like Paste, with one exception. The normal Paste command puts events into the tracks they originally came from. But "Paste to One track" pastes everything to any single track.

Before you choose this command, you must select exactly one track -- the track that is to be pasted to.

Use this command when you want to:

- Paste material from a single track to a different single track.
- "Merge" many tracks into a single track (Cut them all, then use this command).

Note: If you want to paste material from multiple tracks to different tracks, use the drag-and-drop editing, as described in the Track/Measure view chapter. Drag-and-drop works with non-consecutive tracks too.

Edit / Quantize

Purpose: Round off the timing values of events.

Markers: From, Thru, selected track(s).

This lets you make all note events occur on even multiples of some number of ticks. Quantization is typically used to get rid of slight timing mistakes, at the price of making things sound more mechanical or rigid.

Resolution

This item specifies the resolution. Pick one of the predefined resolutions or enter a specific number of ticks.

If, for instance, you supplied a 32nd note as the resolution, all events would be moved so they begin on multiples of 32nd notes.

Starting times

If this item is checked, all event times will be quantized.

Quantize Durations, Too?

If this item is checked, the durations of note events will be quantized also. Durations are always quantized to be one less than the resolution, so that notes do not run into one another. Durations are never quantized to zero; they are rounded up instead.

Percent Strength

This item lets you say to quantize notes only a certain percent of the way towards perfect timing. You might want to do this to "tighten up" timing, but not make it absolutely perfect and mechanical.

For instance, you could specify a strength of 75%. In this case, a note that was off would be moved 75% of the way towards the spot where it should be if it were a perfectly timed note.

If you specify 100%, this works just like normal, full-strength quantization.

Use event filter...

If you check this item, when you press OK to end this dialog box, another dialog box for the Event Filter will appear. The Quantize command uses the criteria you supply to decide whether or not to quantize particular events.

Hint: Event Filters are described on page 122.

Tip: Quantization works best when most of the notes in the region you're quantizing are already close to the resolution you pick. If a note is too far off, it may actually get quantized in the wrong direction, making its timing worse!

Note: Only note events are quantized, unless you specify an Event Filter. If you specify an Event Filter, whatever event types you include there will be quantized. Quantization is normally useful only when applied to note events.

Edit / Slide

Purpose: Slide a region of a track forward or backward in time.

Markers: From, Thru, selected track(s).

This works like the Time+ parameter in the Track/Measure view, but permanently changes the event times, rather than applying a temporary change during playback.

Amount

This item specifies the amount to slide by. A negative number means to slide earlier. A positive number means to slide later. It can be positive or negative. This number is in the units of the following item.

Units

This item specifies whether you slide data in units of ticks or measures.

Use event filter...

If you check this item, when you press OK to end this dialog box, another dialog box for the Event Filter will appear. The Slide command uses the criteria you supply to decide whether or not to slide particular events.

Hint: Event Filters are described on page 122.

Tip: If you issue this command, the region will be moved, so the From and Thru markers will no longer point to its beginning and end. Remember to reset them if you want to use them to issue a new command that uses them.

Note: You can't slide events earlier than 1:1:0. For example, if the From marker is 2:1:0 you cannot slide things earlier by more than one measure.

Edit / Length

Purpose: Expand or shrink the length of a region and/or the note durations in that region

Markers: From, Thru, selected track(s).

This command lets you multiply the starting times and/or individual note durations of a region by a certain percentage.

Starting times

Check this item to re-scale event times.

Durations

Check this item to re-scale note event durations

Percent of original value

This item specifies the percentage.

Multiplying by 200%, for instance, makes things twice as long. Multiplying by 50% makes them half as long.

Note: Integer multiplication is used; you cannot specify a fractional percentage like 1.5%.

To stretch or shrink a region, you should check both starting times and durations. That way, note durations get stretched along with the starting times. You can, however, produce neat effects by selecting only one or the other. For example, changing only the durations to be 50%-75% as long will make the notes staccato.

Use event filter...

If you check this item, when you press OK to end this dialog box, another dialog box for an Event Filter will appear. The Length command uses the criteria you supply to decide whether or not to operate on particular events.

Hint: Event Filters are described on page 122.

Edit / Transpose

Purpose: Transpose pitches (MIDI key numbers) of note events.

Markers: From, Thru, selected tracks.

This command lets you transpose pitches of note events in a region up or down by a number of steps. This is easier and faster than using the Interpolate command.

Amount

Specify a negative or positive amount to transpose by. Negative transposes down, positive transposes up.

Diatonic math

If this item is *not* checked, the amount is taken to mean half steps. The transposition will be chromatic. For instance, if you specify an amount of +1, a C will become a C-sharp, an E will become an F, and so on.

If **Diatonic math** *is* checked, then the amount means diatonic steps -- notes that belong to the major scale of the current key signature For instance, if you specify an amount of +1, and the key signature is C-major, a C will become a D, an E will become an F, and so on. Using diatonic math assures you that transposed notes will always be "in key."

Use event filter...

If you check this item, when you press OK to end this dialog box, another dialog box for an Event Filter will appear. The command uses the criteria you supply to decide whether or not to transpose particular events. Note that the Event Filter items describing non-note events are ignored, because this command operates only on note events.

Hint: Event Filters are described on page 122.

Edit / Controller fill

Purpose: Insert a series of Control or Wheel events that change gradually over time.

Markers: From, Thru, selected tracks.

This command lets you insert a series of MIDI controller or pitch wheel events. The data values can range from one value to another over time.

In the dialog box, you pick a controller type, a MIDI channel, a starting and ending value for the controller, and a starting and ending time (the From and Thru markers are proposed as a default). Cakewalk Apprentice inserts a series of controller events so that the value changes smoothly over time from the starting to the ending value. Controller fill never inserts more than one event on the same tick. If there are any existing controllers of that type in the time region, they are deleted before the new ones are inserted.

You can also create controller changes by drawing in the Controllers view. Drawing is more flexible: you can draw any shape, whereas Controller fill creates only linear (straight line) changes. However, Controller fill can create an even change over a very long period of time, which might be awkward for you to draw by hand.

Track Menu

Track menu commands affect entire selected tracks.

Most of the commands let you change the track parameters you see for each track in the Track/Measure view. You can also change these parameters directly if you're in the Track/Measure view. So why have these commands, too? They let you select more than one track and change the value for several tracks at once. Also, they let you change the parameters if you're not in the Track/Measure view.

Note: If you are not sure what these parameters mean, please refer to the chapter about the Track/Measure view where they are described.

Track / Name

Purpose: Change the name of the selected track, as listed in the Track/Measure view.

Markers: Selected track(s).

A pop-up box will ask you for the new name. You may enter any combination of letters, numbers, and symbols, up to 15 characters long.

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Loop

Purpose: Set the Track/Measure view Loop parameter of the selected track(s).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Status

Purpose: Toggle the Track/Measure view ✓ parameter (track playing status) of the selected track(s) between "✓" (playing) and "m" (muted).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Archive

Purpose: Change the Track/Measure view ✓ parameter (track playing status) of the selected track(s) to "a" (archived).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Key+

Purpose: Change the Track/Measure view Key+ parameter (MIDI key number transposition) of the selected track(s).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Vel+

Purpose: Change the Track/Measure view Vel+ parameter (velocity transposition) of the selected track(s).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Time+

Purpose: Change the Track/Measure view Time+ parameter (timing offset) of the selected track(s).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Port

Purpose: Change the Track/Measure view Port parameter of the selected track(s).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Channel

Purpose: Change the Track/Measure view Chn parameter (forced MIDI channel) of the selected track(s).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Patch

Purpose: Change the Track/Measure view Patch parameter (starting patch number) of the selected track(s).

Note: Please refer to the chapter about the Track/Measure view for a description of this parameter.

Track / Volume

Purpose: Change the Track/Measure view Vol parameter (starting volume) of the selected track(s).

Track / Pan

Purpose: Change the Track/Measure view Pan parameter (starting pan setting) of the selected track(s).

Track / Solo

Purpose: Mutes all tracks except the current track.

Shortcut key: /

Track / Un-solo

Purpose: Restores tracks to their status before the first "Track/Solo".

Shortcut key: \

Track / Clone

Purpose: Quickly make a copy of an entire track's events and/or parameters.

This lets you quickly make a copy of the entire current track -- move the highlight to that track in the Track/Measure view before selecting this command. You are prompted for the number of the track the copy should be placed on. By default it suggests the next track with no events.

Check the options you want for cloning only the track's events, only its Track/Measure view parameters, or both.

Track / Wipe

Purpose: Wipe all events from track(s), but do not reset the track name and other parameters.

Markers: Selected track(s).

You are asked whether you really want to wipe the track. If you answer "Yes," all events are erased.

Warning: The events are erased, not "Cut". You cannot get them back. The "Edit/Undo" command cannot undo this, either.

Track / Kill

Purpose: Wipe all events from track(s), and reset all track parameters.

Markers: Selected track(s).

This command lets you completely kill a track or tracks. All events are erased and all parameters in the Track/Measure view (name, key number transposition, and so on) are reset to the initial start-up values.

Warning: The events are erased, not "Cut". You cannot get them back. The "Edit/Undo" command cannot undo this, either.

Settings Menu

The Settings menu has options for setting a number of name, MIDI, and MIDI interface parameters.

Settings / Metronome

Purpose: Adjust various qualities of the metronome.

The dialog box presents you with some general items. The first two are about whether or not the metronome will be on during recording and playback, respectively. The third item is the "Accent primary beats" option.

The fourth item lets you enter the number of measures of count-in before recording begins. This feature counts off the metronome before recording actually starts, so you have a chance to get ready.

"Use PC Speaker" is a global setting (not saved in each individual workfile). Turn this off if you disklike the PC speaker metronome sound and prefer to use the MIDI metronome option.

MIDI Metronome

The metronome "tick" is heard in the form of a MIDI note: for example, a closed hi-hat or click sound on your drum machine. You specify what that note should be: the output port and MIDI channel of the device that's going to play the metronome note, and the note's pitch, velocity, and duration. By default, these are set to port 1, MIDI channel 10, and a pitch that is assigned to the closed hi-hat sound on most drum machines.

To disable the MIDI metronome tick, set the velocity item to "0".

Settings / MIDI Devices

This command lets you link Cakewalk Apprentice ports with any Windows Multimedia Extensions MIDI drivers for Creative Labs products. Remember that each track can be routed to a port, which is set using the track Port parameter.

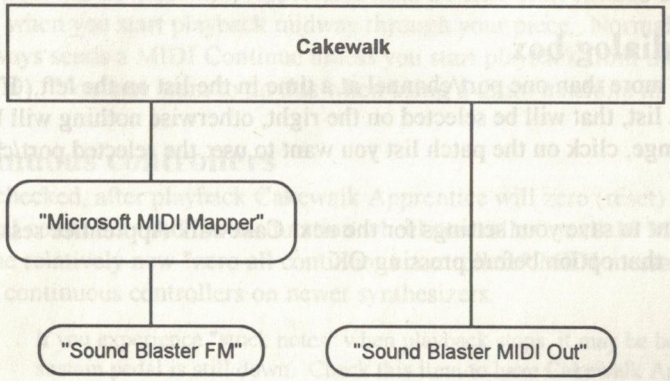
You may pick any number of available MIDI In and MIDI Out devices. (You must pick at least one MIDI Out device.) For devices to show up in this list, you must have installed them using the "Drivers" icon of the Windows Control Panel. Cakewalk Apprentice lists only MIDI In and MIDI Out devices, not other kinds of devices.

MIDI Out devices are assigned to Cakewalk port numbers in the order they are listed. For example, if you select "Sound Blaster FM Sounds" and "Sound Blaster MIDI Out", and they are listed in that order, then in Cakewalk Apprentice port 1 is the Sound Blaster FM sound module and port 2 is the Sound Blaster MIDI Out jack.

Drivers and multiple programs; the Microsoft MIDI Mapper

Some drivers may not support more than one program using them at the same time. If so, Cakewalk Apprentice may not be able to open a device that some other program is already using.

What might not be obvious is that "some other program" could be the Microsoft MIDI Mapper. The Microsoft MIDI Mapper is a driver that intercepts MIDI data and modifies it before passing it on to a real device. If both Cakewalk Apprentice and the MIDI Mapper are trying to use the same device, Cakewalk Apprentice may give you an error message that it can't open the device. This is because the MIDI Mapper has already opened it.



Example of Cakewalk opening the Sound Blaster FM device indirectly, because the MIDI Mapper's current map

opens it, but directly opening the Sound Blaster MIDI Out device. Asking Cakewalk to open the Sound Blaster FM driver directly, too, would cause a problem: either because the MIDI Mapper has already opened it and Cakewalk can't, or the other way around. (This assumes that the Sound Blaster FM driver doesn't allow itself to be opened by more than one program at once.)

- If you want to use the device through the MIDI Mapper, you must *not* also directly select it from Cakewalk Apprentice's "Settings/MIDI Devices" command.
- If, instead, you don't want to use the device with the MIDI Mapper, then press Cancel and exit Cakewalk Apprentice. Use the "MIDI Mapper" icon of the Windows Control Panel to change the current map so that it doesn't use the device. Then re-start Cakewalk Apprentice and use "Settings/MIDI Devices" to retry opening the device directly.

Settings / Patch names

Cakewalk Apprentice lets you assign names to patches. Because you may have different kinds of instruments connected to various ports and channels, Cakewalk Apprentice lets you specify which patch names to use for each port and channel. Once you set this up, the correct list will be used automatically for each port/channel.

By default, all ports and channels are set up to use the patch numbers 0 through 127, which are the real numbers that MIDI uses. Many synthesizers display numbers from 1 through 128, and that list of numbers is available. You may also select from lists of names that correspond to the factory presets of a number of popular synthesizers. If you don't see your instrument on the list, you may be able to use the "General MIDI" list, which is a standard layout that many newer instruments use. For information on creating your own lists of patch names, see the comments in the PATCHES.INI file, which you can view and edit using Windows Notepad.

Using the dialog box

You can select more than one port/channel at a time in the list on the left. If they share the same patch list, that will be selected on the right, otherwise nothing will be selected. To make a change, click on the patch list you want to use: the selected port/channel(s) will use that list.

If you don't want to save your settings for the next Cakewalk Apprentice session, remove the check from that option before pressing OK.

Settings / MIDI Out

Purpose: Control some aspects of what is sent to MIDI Out.

Transmit MIDI Start/Continue/Stop/Clock

If this is checked, then Cakewalk Apprentice sends MIDI Sync information, letting another device sync to Cakewalk Apprentice. You can un-check this if you don't need to sync something else to Cakewalk Apprentice; it may help improve throughput a little bit.

Send MIDI SPP

Checking this item makes Cakewalk Apprentice send a MIDI SPP (Song Position Pointer) message before starting playback. You may want to disable this when using a drum machine in certain ways.

Locate delay for SPP recipient

If you've checked the previous item, Cakewalk Apprentice sends the SPP message, waits this amount of time, then starts playback. The time is in 1/18ths of a second: e.g., put "1" here for 1/18th second, 2 for 2/18ths of a second, or 18 for 18/18th (1) second. This delay gives receiving devices time to respond to the SPP message by jumping to that location. If you need to specify a delay for a slow device, you will want to experiment to find a value that is big enough to give the device time to respond, but not so big that there's an irritating delay before playback begins.

Use Start, never Continue

Checking this item makes Cakewalk Apprentice send a MIDI Start instead of a MIDI Continue even when you start playback midway through your piece. Normally, Cakewalk Apprentice always sends a MIDI Continue unless you start playback from the very beginning (1:1:0). You may want to do this when using a drum machine in certain ways.

Zero continuous controllers

If this item is checked, after playback Cakewalk Apprentice will zero (reset) the pitch wheel, the pedal controller, and the modulation wheel controller on all 16 MIDI channels. It also sends the relatively new "zero all continuous controllers" MIDI message, which turns off other continuous controllers on newer synthesizers.

Tip: If you experience "stuck notes" when playback stops, it may be because the sustain pedal is still down. Check this item to have Cakewalk Apprentice always lift up the sustain pedal when playback stops.

Patch/wheel/controller search-back

If this item is checked, before playback starts Cakewalk Apprentice searches for the most recent patch change, wheel, and pedal events on each port and MIDI channel, and sends them. This ensures that even if you jump to an arbitrary point in your work, the patch, wheel, and pedal settings will be correct. If your work is very long, this searching process could take awhile.

Settings / MIDI Thru

Cakewalk Apprentice offers you powerful control over the echo of MIDI data from MIDI In to MIDI Out -- that is, from your master keyboard to one or more of your sound modules. This function, known as MIDI Thru, is configured via "Settings/MIDI Thru".

MIDI Thru modes

Cakewalk Apprentice has three modes for MIDI Thru:

None Disables MIDI Thru entirely.

Manual Enables MIDI Thru, and lets you manually control mapping (described below).

Auto Enables MIDI Thru, and maps data automatically by following the parameters of the current track in the Track/Measure view. The Auto mode allows you to use the Track/Measure view as a list of selectable MIDI Thru mapping destinations.

Mapping

These parameters affect mapping (routing and processing) of MIDI Thru data:

Port The desired destination port.

Channel The MIDI channel to follow. 0 means that the channel is not mapped (like the Track/Measure view Chn parameter).

Key+ The desired note transposition.

Vel+ The desired velocity transposition.

Mapping in Auto mode

Auto mode sets these parameters automatically by using the corresponding parameters of the current track. For instance, if the current track is set to transmit on channel 16 (its Channel parameter is "16") then Thru is automatically mapped to channel 16.

Local Control

If your controller is a synthesizer keyboard (as opposed to a stand-alone MIDI keyboard controller), then it's important to understand how Local Control works. Local Control is a setting that most synthesizers have. It controls whether the keyboard is directly connected to the sound generators.

Local Control ON Your synthesizer will sound when you play it, even if no MIDI cables are connected, because the keyboard is connected internally to its sound generation circuitry.

Local Control OFF Your synthesizer will sound only when it receives data at its MIDI In port.

In both cases, playing your keyboard will send MIDI data out the synthesizer's MIDI Out. Local Control ON is intended for setups where your synthesizer's MIDI Out data is not echoed back to its MIDI In. Local Control OFF relies on receiving that data via MIDI In.

Tip: If you set Local Control the wrong way, then you will get doubled notes or note drop-out.

Local Control OFF is preferred.

The preferred mode of operation in Cakewalk Apprentice is to turn Local Control OFF. This allows your keyboard data to be routed to other sound modules without also making undesired sounds at your synthesizer. It also allows Cakewalk Apprentice's MIDI Thru parameters, like velocity and key transposition, to work.

For these reasons, Cakewalk Apprentice sends a special MIDI message for turning Local Control OFF to all ports and channels at program startup. Most modern synthesizers respond to this message, requiring no further configuration.

If your synthesizer powers up with Local Control ON and does not respond to the Local Control OFF MIDI message, then you may need to manually set it to Local Control OFF every time you turn it on.

Using synthesizers that can't turn Local Control OFF

If your synthesizer has no Local Control OFF capability (this is rare), then you can indicate this to Cakewalk Apprentice by setting the Local On Port item to the number of

the output port connected to your synthesizer. Cakewalk Apprentice will suppress sending MIDI Thru data to that port the best way possible to avoid note doubling (i.e. data won't echo back to the same port and channel it came from). In this configuration you'll probably find yourself turning your synthesizer's volume control up and down sometimes, to avoid hearing it play along with your other modules. But at least Cakewalk Apprentice lets you use MIDI Thru mapping as best you can given the limitations of your synthesizer.

Note: Local On Port should be set to 0 for the preferred Local Control OFF mode of operation, i.e., if you don't have this problem.

Settings / Time format

Purpose: Set a SMPTE/MTC time format and starting offset.

You can pick any of the four common SMPTE/MTC rate/formats.

You may also specify an offset SMPTE/MTC time. This is the SMPTE/MTC time that corresponds to the beginning of your song. In other words, when the musical time is "1:1:0", this offset will be the equivalent SMPTE/MTC time.

Idea Sampler

Here are some ideas for using Cakewalk Apprentice in ways that you may find interesting.

Program Manager icons that play a song

You can make Cakewalk Apprentice start, load and play a file, then exit when the song finishes. Using this option, you can create Windows Program Manager icons that play a file when you click on them.

1. In Program Manager, choose "File/New".
2. Pick "Program item".
3. In the description, you can enter the full title of the song, though this is optional.
4. More importantly, in the "Command line:" field, enter:

```
C:\WCWLITE\WCWLITE.EXE /Play DEMO.WRK
```

Of course you can substitute any name you want for DEMO.WRK. You may need to enter the full pathname to the file if it's not in the Cakewalk Apprentice directory or the WrkFilesDir set in your WCWLITE.INI file.

5. You may also want to check the "Run minimized" option if you don't want Cakewalk Apprentice to take up the whole screen when it starts.
6. Press OK.

Now try double-clicking on the icon you just created. Cakewalk Apprentice should start playing the song, after taking a few seconds for it to load itself and then the song. When the song finishes, Cakewalk Apprentice will close itself -- so long as you didn't take any action to stop or change the song.

Carillon

If you have a Windows utility that can run programs at particular times of day, you can set up a "carillon" using the /Play command-line flag as explained in the previous idea.

Appendix A: Cakewalk Professional for Windows

This appendix describes features available in Cakewalk Professional for Windows 1.0 that are not available in Cakewalk Apprentice.

Using other devices

This edition of Cakewalk Apprentice works only with products made by Creative Labs. Cakewalk Professional works with any device that provides a Windows Multimedia Extensions driver.

Realtime/Multi-take mode

Multi-take mode lets you more-easily record multiple "takes" and choose the best one later.

Realtime/Punch-in

Punch-in lets you replace material in a track with newly-recorded material. You can set a punch-in and punch-out time, so that you're sure to replace only the section you want.

Realtime/Auto-shuttle (looping)

Auto-shuttle is a group of features that let you make Cakewalk Professional automatically stop at a certain time, rewind to a certain time, and restart. A loop button on the Control bar lets you quickly enable all these options to play the From..Thru region repeatedly.

System Exclusive view

This is a 256-bank System Exclusive generic librarian. System Exclusive is used by MIDI synthesizers to describe patches (sounds) and other settings unique to each instrument. You can take "snapshots" of your MIDI setup by downloading "bulk dumps" from the instruments. Cakewalk Professional stores these in banks, and lets you automatically send the information back when a file is loaded.

Faders view

You can use 16 faders (sliders) to record MIDI Controllers (including Volume, Pan, and more). The faders update during playback to show the current value.

CAL view

CAL is short for Cakewalk Application Language, which lets you create your own editing commands. CAL programs can create, modify, and delete events in tracks. You can write your own CAL programs or use ones written by other people. We even have a disk of CAL Contest winning programs, available to registered owners of Cakewalk Professional.

Edit/Interpolate

Interpolate is like a search-and-replace command for MIDI data. It uses two Event Filters: in the first one you specify search criteria and in the second you say how to scale the event values. This command is so flexible it can accomplish many tasks.

Edit/Retrograde

This simple command reverses the order of events in a region. For example, if you're writing a fugue, you can take a theme and quickly reverse it.

Edit/Fit-to-time

For writing movie scores or commercial jingles, Fit-to-time is invaluable. You can make a section of music fit a certain duration like 30 seconds; the command figures out the tempo change(s) necessary.

Edit/Fit improvisation

Sometimes you just want to record free-form material, without paying attention to the metronome and Measure, Beat, Tick grid. Fit improvisation lets you have the best of both worlds: you can take such a recording and fit it into the Measure Beat Tick grid so that it's easier to edit. You record a "reference track" where you record a note to mark the location of each beat. Then Fit improvisation takes over to "rein in" the material by supplying compensating tempo changes to line up your beats with the Measure Beat Tick grid.

Settings/Clock (External synchronization)

Cakewalk Professional can play in synchronization with an external source: both MIDI Sync and SMPTE/MTC Sync. This lets you add music for a video, or sync to a tape deck to add vocals and live instruments.

Settings/Timebase

Cakewalk Apprentice has a timing resolution of 120 ticks per quarter-note. While this is very good resolution, many professional musicians need finer resolution. Cakewalk Professional lets you work with a variety of timebases ranging from 48 to 480 ticks per quarter-note.

Settings/Record filter

If you want to filter out certain kinds of MIDI events during recording, like Key After touch for a patch where that doesn't have any effect on the sound quality, this option lets you choose not to record that or any other kind of MIDI message.

Settings/Channel table

Cakewalk Apprentice can record multiple MIDI channels at once, placing them in a single destination track. This option in Cakewalk Professional lets you route each MIDI channel to a separate track, which is useful for recording a sequence from another sequencer or using a MIDI guitar controller where each string transmits on a separate MIDI channel.

Settings/Auto-save

Auto-save backs up your work after a certain number of minutes have elapsed, or after you've made a certain number of changes to it, whichever happens first. A separate AUTOSAVE.WRK file is used, so that auto-save doesn't write to your original file any tentative changes you're making.

Appendix B: MIDI Files

Standard MIDI Files are files in a format agreed on by the MMA (MIDI Manufacturers Association) for exchanging MIDI data between different programs. While a program may have its own "native" format, if it can read and write MIDI Files it has a common language with which to talk to other MIDI software.

Cakewalk Apprentice can read and write your work as Standard MIDI Files. Cakewalk Apprentice can read "Format 0" and "Format 1" MIDI Files. Cakewalk Apprentice writes "Format 1" MIDI Files.

Note: Format 0 MIDI Files have a single track, with all the events in that track. Format 1 MIDI Files can have more than one track, just like Cakewalk Apprentice files.

Timebases

MIDI Files can be expressed in any of a number of timebases (ppq resolutions). It is likely that most MIDI Files you will encounter use a common timebase like 120 PPQ.

If a MIDI File uses a timebase other than the 120 PPQ that Cakewalk Apprentice supports, the times will be converted to their equivalent values at 120 PPQ.

Supported MIDI File Meta-Events

MIDI Files can have *meta-events*. The types of meta-events that Cakewalk Apprentice reads and writes are listed in the following table:

MIDI File Meta-Event	Cakewalk Apprentice
Meter and key signature	Meter/Key signature map entry
Tempo	Tempo change
General Text	Track name
General Text in "conductor track" of Format 1 file	Markers view markers
Track Name	Track name

Features not supported by MIDI Files

While the MIDI File format is very flexible and extensive, it cannot express certain Cakewalk Apprentice features. For example, the temporary transpositions of certain track parameters -- Key+, Vel+, Time+, and Chn -- cannot be expressed in a MIDI File.

Cakewalk Apprentice will help out by actually making most of these changes to the events themselves. For instance, if you have forced out track 1 on channel 10, Cakewalk Apprentice will write the MIDI file so that every event on track 1 has a channel number of 10.

Note: Cakewalk Apprentice does this only for the key transposition, velocity transposition, forced channel, starting patch, starting volume, and starting pan parameters. You are responsible for the other parameters. Also, be aware that the Comments notepad is not supported by the MIDI File format.

As a result, if you save a work as a MIDI File and load it again, you'll notice that all of those Track view parameters have "vanished". But the music should sound the same, because Cakewalk Apprentice has made these changes to the events themselves. Also, you'll notice that there will be no empty tracks in between non-empty tracks. Cakewalk Apprentice does not write empty or muted tracks to the MIDI File. Before you save your work as a MIDI file, make sure that you have un-muted any tracks you want to keep as part of that MIDI file.

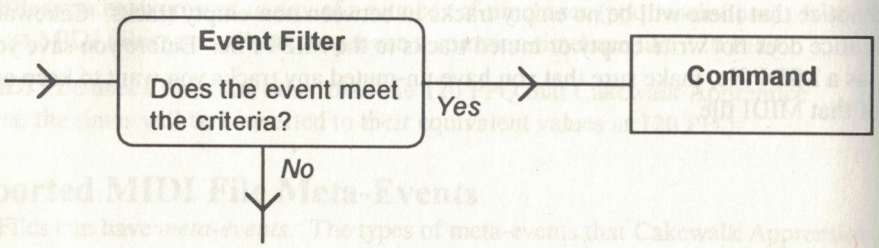
Appendix C: Event filters

The Event Filter is one of Cakewalk Apprentice's most powerful options. It can be used with many commands to let you make the command operate only on certain kinds of events within a region.

What the Heck Are These Things, Anyway?

In general, a "filter" screens out some things and includes others. Cakewalk Apprentice's Event Filter lets you specify criteria (requirements) that events must meet for the command to operate on them.

Event Filters let you specify many types of criteria. The most basic level is the *kind* of event. For example, you can include only *note* events, and filter out all the rest. Or, you can include everything *but* note events, and filter out the notes.



The Overall Layout

An Event Filter is a large dialog box with many items arranged in rows and columns.

1. Each row is for a different *kind* of events.

The first column of each row is a check box. If checked, then that kind of event will be included. If not checked, then that kind will not be included, and the rest of the row is ignored.

2. The columns in each row let you specify *data ranges* for that kind of event.

Since different types of events have different kinds of data, the data ranges will vary among event types. For instance, a note event has a key number (pitch), a velocity, and a duration. You can enter ranges for each of these. A patch change event, by contrast, has only one data parameter: the patch number. Each data range also has a checkbox to say that you want to include events that are NOT in the range you specified.

Note: For event types that have more than one data range, the filter is a logical AND of each of the ranges. For example, a note event must fall within the pitch range AND the velocity range AND the duration range in order to be included.

3. The last several rows, in the bottom right corner, are for data that is common to all kinds of events.

Every type of event has a MIDI channel associated with it. Also, every event occurs on a certain beat and a certain tick of a measure. These last two items are especially useful. They let you manipulate, for example, only the first beat of every measure.

The Everything and Nothing buttons

Pressing the **Everything** button sets the Event Filter to include all events, and **Nothing** includes nothing. This gives you a "clean slate" to start with, rather than checking every item in this dialog box.

Input

In general, you move around and input values in the Event Filter dialog just like any other dialog. Remember not to press OK until you are done entering information for all the items.

Tip: Anyplace you are supposed to enter a pitch, you can also hit a key on your MIDI keyboard. As you hit keys, the pitch will change on the screen. When it's what you want, move to the next Event Filter item using TAB or by clicking, just as if you were done entering from the computer keyboard.

Using an octave wildcard in a range pitch string

In Event Filter ranges that accept a pitch string, you can use a question mark in place of the octave number. This is called an *octave wildcard*. It means, "any pitch of this class, regardless of octave."

For example, the pitch string "C?" will match a C in any octave. Use this special string for the minimum range value; the maximum value isn't needed and its value is ignored. (In this case you are not really entering a "range," *per se*).

Shut Up and Play Yer Guitar: Example 1

If you're wondering what good all this is, here's a simple example using the "GoTo/Search" command. Let's say that you want to look for notes with the pitch C6. We'll assume that you know how to load files from the "Basic Tutorial" chapter.

1. Use "File/Open" to load the DEMO.WRK file.
2. Switch to the Track/Measure view.
3. Open a Piano-roll view by RIGHT-clicking on Track 1.
4. If the Piano-roll view isn't showing C6 in the label on the left, use the vertical scrollbar to move up or down until you see C6. (This just ensures that the note will be on the screen when we're moved to its time by using "GoTo/Search").
5. Choose "GoTo/Search".
6. An Event Filter dialog appears.
7. Press the **Everything** button, just to make sure that the Filter is set to include everything. We'll narrow it down next.
8. In the first row, which is for Note events, click on the **Key** data range's **Min** column. (With the keyboard, you can press Tab twice to get there.) On your MIDI keyboard, tap the C6 key -- or just type in "C6" using the computer keyboard.
9. Now press Tab to move to the next column, **Max**. Enter "C6" there, too.

That's it for setting the Event Filter! You're saying to include only note events whose pitch is from C6 through C6. (Since we didn't un-check the rows for other kinds of events, they'd be included too, but in this example we're assuming that doesn't matter).

10. Press OK.

The dialog box will go away and the "GoTo/Search" command will execute. It will set Now to the time of the first note event with a pitch of C6. You'll see the Piano-roll view update to show the new Now time.

11. Now try using the "GoTo/Search again" command by pressing its shortcut key, ALT+F5. "GoTo/Search again" remembers what you just entered, and so it shows you the *next* note with a pitch of C6. Try tapping ALT+F5 several times in a row to see successive notes with a pitch of C6.

Splitting Left- and Right-Hand Parts: Example 2

Here's another example, which shows how you can make a Cakewalk Professional editing command work only on specific events by checking its **Use event filter..** option.

Let's say that you've just recorded an electronic piano riff on track 1. But you'd like to split the left-hand and right-hand parts and put each on its own track. That way, you can fiddle with just the bass line your left hand played, and not affect the right-hand's chords.

If all the notes your right hand played were above C4, you could accomplish this by cutting out all the note events in the range C4..C9, then pasting them to, say, track 2. Your left-hand part will still be on track 1.

Here's how to do it. We'll assume that you've gone through the "Editing Tutorial" chapter and are comfortable with using "Edit/Cut" and "Edit/Paste to One track".

1. Switch to the Track/Measure view.
2. Make sure you've selected only track 1. You can do this by tapping NumPad5, the shortcut key for "Mark/Un-Select all", then LEFT-clicking anywhere on track 1 to make it the current track. (By default, the current track is considered selected.)
3. Set From and Thru to the beginning and end, respectively, of the track. You can do this by pressing CTRL+F9 and CTRL+F10.
4. Choose the "Edit/Cut" command.
5. Check the **Use event filter..** option.
6. Press OK.
7. The "Edit/Cut" dialog is replaced by an Event Filter dialog.
8. Press the **Everything** button, just to make sure that the Filter is set to include everything.
9. In the first row, which is for Note events, move the cursor to the **Key** data range's **Min** column. On your MIDI keyboard, tap the C4 key -- or just type in "C4" using the computer keyboard.
10. The **Max** value is already C9, so we don't need to change it.

That's it for setting the Event Filter! You're saying to include only note events whose pitch is from C4 through C9. (Since we didn't un-check the rows for other kinds of events, they'd be included too, but in this example we're assuming that doesn't matter).

11. Press OK.

The dialog box will go away and the "Edit/Cut" command will execute. It will cut out only note events with pitches from C4 through C9, put them in the Scrap buffer, and leave behind the others.

12. Finally, you can use "Edit/Paste to One track" to paste the events to track 2 starting at 1:1:0. Again, we're assuming you learned about this command in the "Editing Tutorial" so we won't cover the details here.

Appendix D: Configuration (.INI) files

Using .INI files

Many Windows applications, as well as Windows itself, use files to store information about your preferences and configuration. Often applications store values to these files when you make selections in the program using menus or dialog boxes. However, you may also change these files directly. In some cases, there is no way to change the setting in the application, and changing the file directly is the only way.

These files usually end in the extension .INI, and follow a common format. They are divided into sections whose names appear in the file in brackets, like this:

[Section Name]

Then within each section, settings are of the form:

<option name>=<value>

Cakewalk Apprentice uses two files like this: WCWLITE.INI and TTSSEQ.INI.

WCWLITE.INI

This file is located in the directory you installed Cakewalk Apprentice: for example, in C:\WCWLITE.. It contains information that Cakewalk Apprentice needs to store between sessions. Many items here result from choices you make in menus and dialog boxes. But

some items can be changed only by you directly editing this file using the Windows Notepad application.

If you make changes to this file, they will not take effect until the next time you start Cakewalk Apprentice. Also, when you quit Cakewalk Apprentice it writes some information about your preferences to this file. So if you need to directly edit WCWLITE.INI, it is best to quit Cakewalk Apprentice, make your changes, then restart Cakewalk Apprentice.

WCWLITE.INI is divided into different sections. The section beginning with the line

```
[WINCAKE]
```

is where you should add information if no particular section is mentioned. For example, if you are advised to add the line "BaseOctave=-2 to WCWLITE.INI", you should put it on the line under [WINCAKE], like this:

```
[WINCAKE]
BaseOctave=-2
```

Following is a discussion of settings that can be changed only by editing the WCWLITE.INI file. You can use any word processor or file editor to load and edit the WCWLITE.INI file.

BaseOctave=<n>

Default: 0.

Unfortunately, there is no industry standard way of numbering octaves. One instrument's C3 may actually be the same MIDI note as another instrument's C5. By default, Cakewalk Professional uses a base octave number of zero. That is, we call MIDI note 0 (the lowest possible note) C0. If you prefer to start counting at a different octave number, set BaseOctave to that number. For example, some Yamaha instruments show MIDI note 0 as C-2 (C negative-two). So, you may set BaseOctave to -2 for Cakewalk to match that octave-numbering scheme.

The following table indicates some common BaseOctave settings, depending on how you want middle C (MIDI note number 60) to be displayed:

To see middle C as.....	Set BaseOctave to
C3	-2
C4	-1
C5	0

WorkFileDir=<drive:pathname>

Where Cakewalk Apprentice looks for Cakewalk workfiles (.WRK) and MIDI Files (.MID, .MFF) by default. If "File/Open" is not starting off in the directory you want, change this setting. If this setting does not exist, by default it looks in the directory where you installed Cakewalk Apprentice: for example, C:\WCWLITE.

WaveFileDir=<drive:pathname>

Where Cakewalk Apprentice looks for .WAV files. If this setting does not exist, by default it looks in the Windows directory: for example, C:\WINDOWS.

TTSSEQ.INI

TTSSEQ.INI is a Cakewalk Apprentice file that should be located with TTSSEQ.DLL in your Windows system directory, for example C:\WINDOWS\SYSTEM. Refer to the previous comments about changing WCWLITE.INI.

All of the following configuration lines go in the [OPTIONS] section.

Important! If you do not see an [OPTIONS] line, be sure to add one at the end of TTSSEQ.INI. Then add any of the following settings *after* the [OPTIONS] line. These settings will *not* be recognized if you place them in sections other than [OPTIONS].

SendLocalOff=<0 or 1>

Default: 1 (enable)

On startup, Cakewalk Apprentice sends a Set Local Control Off message to all channels and all ports, unless this value is set to 0.

SendLocalOn=<0 or 1>

Default: 0 (disable)

On exit, Cakewalk Apprentice sends a Set Local Control On message to all channels and all ports if this value is set to 1.

SyncOutputPort=<num>

Default: 1

This sets the port to which MIDI Sync output messages such as SPP, MIDI Clocks, Stop, Start, and Continue are sent. You can change this using Cakewalk Apprentice's Settings/MIDI Devices dialog box.

TimerPeriod=<num>
TimerResolution=<num>
Defaults: TimerPeriod=10 and TimerResolution=5

These variables control the timer period and resolution used for internal clock timing. These values are specified in milliseconds. Larger numbers relax timing *precision*, but may result in greater *accuracy* on slower computers. ("Precision" and "accuracy" are two different concepts. "Precision" means how many time-slices there are, and "accuracy" means whether they really occur when they're supposed to. Seeking unrealistic precision can backfire: the greater number of time-slices may be too much for the computer to handle, and they won't occur exactly when they're supposed to.)

SYSTEM.INI

SYSTEM.INI is a Windows file that should be located in your Windows directory, e.g. C:\WINDOWS. It contains a number of options that affect the performance of all Windows programs. You can change this file using the Windows Notepad. Changes do not go into effect until you restart Windows.

FasterModeSwitch=1
Default: 0

This goes in the [Standard] section of SYSTEM.INI.

This has no effect for 80386 CPUs, but most 80286 users should change this to 1. It enables a faster method of switching from protected to real mode, which really helps interrupt-intensive applications like Cakewalk Apprentice. Windows does not enable this by default because certain early IBM AT compatibles crash due to lack of BIOS support for this option.

Appendix D: Time Strings

This discusses how Cakewalk Apprentice represents times, both internally and externally (how you see them).

Cakewalk Apprentice has a timebase of 120 ticks per quarter-note. The basic unit of time is the *tick*. Event times and note durations are measured in terms of ticks.

Musicians typically do not think in "ticks", but rather in measures and beats. So Cakewalk Apprentice converts times into time strings, which have the form

<measures>:<beats>:<ticks>

where *<ticks>* is the number of left-over ticks that don't divide into a beat.

Obviously this conversion depends not just on the timebase, but also on the meter (time signature), since the meter tells how many ticks there are per beat and per measure. If the meter is 4/4 (four quarter-notes per measure), there are 4 x 120 or 480 ticks per measure.

In conformance with musical, not computer, convention beats and measures are numbered starting with one, not zero. So an event that is zero ticks into the piece -- at the beginning -- will have the time string

1:01:000

and an event 120 ticks into the piece will have, still assuming 4/4 time and a timebase of 120 PPQ , the time string

1:02:000

An event one tick later (121 ticks) into the piece, will have the time string

1:02:001

Internally, Cakewalk Apprentice stores times as absolute ticks, not as measure:beat:tick time strings. Thus changing the meter will not actually change the times of events. It will only change how Cakewalk Apprentice "carves" up the raw tick time to display to

you. Similarly, the From, Now, and Thru markers will appear as different measure:beat:tick time strings but still point to exactly the same internal tick time.

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